DOCUMENT RESUME

ED 241 208 RC 014 605

AUTHOR	Joseph, Alun; And Others
TITLE	Public Input into Planning for Municipal Service Provision: A Method and Case Study. Studies in Rural Adjustment. Report No. 14.
INSTITUTION	Guelph Univ. (Ontario). Dept. of Geography.
SPONS AGENCY	Ontario Ministry of Agriculture and Food, Toronto.; Social Sciences and Humanities Research Council of Canada, Ottawa (Ontario).
PUB DATE	Jul 82
NOTE	103p.
AVAILABLE FROM	University School of Rural Planning and Development, University of Guelph, Guelph, Ontario, Canada, NIG 2WI ($3.75 Canadian).
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Budgeting; Case Studies; *Community Attitudes; *Community Services; Decision Making; Delivery Systems; Expenditures; Foreign Countries; *Management Games; Municipalities; Questionnaires; *Research Methodology; *Resource Allocation; *Rural Areas; Simulation; Socioeconomic Status; Tax Allocation
IDENTIFIERS	Canada; Ontario (Erin Township); *Trade Off Games

ABSTRACT

As part of on-going research on rural public service provision, researchers illustrated the use of a methodologically rigorous tool (a "tradeoff game") for eliciting community preferences for municipal public services. The trade-off game allowed adults in 122 households in Erin Township, Wellington County, Ontario, to assess 13 currently available service alternatives and to indicate the trade-offs they would make when financial or other constraints prevented their choosing the optimum level of services. Respondents played three times, once with a fixed budget, once with a budget reduction of 10%, and once with a budget increase of 10%. Generally, players appeared satisfied with current resource allocations. They were prepared to accept slight reductions in some services for slight improvements in others. Players responded to budget increases and reductions with general reallocations of resources among all services. Overall, 41% of the players preferred the status quo, 40% preferred an increased budget, and 9% preferred a decreased budget. Generally, several socioeconomic factors, service use, and geographic variations in service quality and need affected responses. Length of residence did not. Such games can provide decision makers with comprehensive community attitude information and can effectively educate the community about budget constraints. (SB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED241208

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Allen Joseph

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

RC014605

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

PREFACE

This report is part of ongoing research on public service provision in rural areas. Other facets of this research are reported on in Reports 10 (Joseph, Smit and Poyner, 1980) and 12 (Joseph and Poyner, 1981) in this series.

This report presents a trade-off methodology for eliciting constrained community preferences for municipal public services. The potential utility of the trade-off game as a planning tool is demonstrated through an application in Erin Township, Wellington County.

We gratefully acknowledge the co-operation of the various officials who provided us with information and advice, the residents of Erin Township who so patiently participated in the survey, and Mr. Peter Bantock who assisted with the data collection and analysis. This work would not have been possible without the financial support of the Ontario Ministry of Agriculture and Food (Program 40, 'Rural Living') and the Social Sciences and Humanities Research Council of Canada.

TABLE OF CONTENTS

	Page
PREFACE	i
TABLE OF CONTENTS	ii
LIST OF TABLES	iii
LIST OF FIGURES	v
SECTION ONE - INTRODUCTION	1
SECTION TWO - ELICITING COMMUNITY PREFERENCES	5
2.1 Preference Measurement	5
2.2 Trade-off Games	7
2.3 The Erin Township Game	10
SECTION THREE - THE CASE STUDY	13
3.1 The Study Area	13
3.2 The Sample	15
SECTION FOUR - PREFERENCE PATTERNS: Scenario 1	21
4.1 Unconstrained Preferences	21
4.2 Constrained Preferences	23
4.2.1 General Preferences	23
4.2.2 Differences in Preferences	28
4.2.3 Summary	39
SECTION FIVE - PREFERENCE PATTERNS UNDER VARIABLE BUDGETS	40
5.1 Scenario 2	40
5.1.1 General Preferences	40
5.1.2 Differences in Preferences	51
5.2 Scenario 3	62
5.2.1 General Preferences	62
5.2.2 Differences in Preferences	62
5.3 Inter-Scenario Comparisons	63
5.3.1 General Preferences	64
5.3.2 Differences in Preferences	65
5.3.3 Preferred Scenario	69
SECTION SIX - OVERVIEW	72
REFERENCES	75
APPENDECES 1 Erin Township: Service Levels and Costs to Average Municipal Taxpayer with $4,000 Assessment	78
2 The Questionnaire	82

LIST OF TABLES

Table		Page
1	Selected Characteristics of the Sample	16
2	Cross-Tabulation of Respondent Characteristics	18
3	Use of Services	19
4	Unconstrained Preferences for Services	22
5	Propensity to Trade-Off Service Levels: Scenario 1	24
6	Frequency and Amount of Service Trade-Offs: Scenario 1	25
7	Mean Preferred Allocations: Scenario 1	27
8	Mean Allocations by Use of Service: Scenario 1	30
9	Mean Allocations by Length of Residence: Scenario 1	31
10	Mean Allocations by Residence Location: Scenario 1	33
11	Mean Allocations by Age: Scenario 1	34
12	Mean Allocations by Gender: Scenario 1	35
13	Mean Allocations by Household Income: Scenario 1	36
14	Mean Allocations by Level of Education: Scenario 1	37
15	Mean Allocation by Occupation: Scenario 1	38
16	Mean Preferred Allocations: Scenario 2	41
17	Frequency and Amount of Service Trade-Offs: Scenario 2	42
18	Mean Allocations by Use of Service: Scenario 2	43
19	Mean Allocations by Length of Residence: Scenario 2	44
20	Mean Allocations by Residence Location: Scenario 2	45
21	Mean Allocations by Age: Scenario 2	46
22	Mean Allocations by Gender: Scenario 2	47
23	Mean Allocations by Household Income: Scenario 2	48
24	Mean Allocations by Level of Education: Scenario 2	49
25	Mean Allocations by Occupation: Scenario 2	50
26	Mean Preferred Allocations: Scenario 3	52
27	Frequency and Amount of Service Trade-Offs: Scenario 3	53
28	Mean Allocations by Use of Service: Scenario 3	54
29	Mean Allocations by Length of Residence: Scenario 3	55
30	Mean Allocations by Residence Location: Scenario 3	56

LIST OF TABLES (Cont'd.)

Table		Page
31	Mean Allocations by Age: Scenario 3	57
32	Mean Allocations by Gender: Scenario 3	58
33	Mean Allocations by Household Income: Scenario 3	59
34	Mean Allocations by Level of Education: Scenario 3	60
35	Mean Allocations by Occupation: Scenario 3	61
36	Average Change from Current Levels	64
37	Direction of Change from Current Levels	66
38	Summary of Analysis of Inter-Group Differences in Preferences	68
39	Scenario Preference by Respondent Characteristics	71

LIST OF FIGURES

Figure		Page
1	The Erin Township Game	11
2	The Study Area	14

SECTION ONE

INTRODUCTION

The provision of services to meet the needs and demands of the public within the constraints of limited budgets is an ever present concern for politicians and public servants at all levels of government. This concern has become more pressing through time in consequence of the steadily increasing role of government in service provision.

The public service provision problem confronts decision-makers at all levels and in all areas, but it has become an increasingly important issue in rural municipalities as the composition of rural populations, and their needs and demands for services, has changed over recent decades (Canadian Council on Rural Development, 1973; Joseph and Smit, 1981). This change in the composition of rural populations, namely a decline in the relative importance of the farm component, has stemmed from organizational changes in agriculture (Smit, 1979) and from the expansion of urban activities, particularly residential, out from metropolitan and sub-metropolitan cores (Gertler and Crowley, 1977). The strength and ubiquity of these developments has served to complicate the basic problem of making needed services available at a reasonable cost and has made the development of sound planning strategies for service provision more urgent.

Two key features of a sound planning strategy for service provision are technical quality (i.e., the methodology underlying the strategy should be as rigorous as possible) and responsiveness (i.e., the inputs into the methodological infrastructure of the strategy should reflect as far as possible the wishes of the community being planned for). The

importance of technical quality is clear. The quality of decision-making, be it on service provision or whatever, is a direct function of the quality of information available to decision-makers. All too often public resources have been allocated to meet community needs according to priorities established through conventional wisdom, routine, professional norms, or precedent (Thompson, 1969). The means of achieving greater technical quality clearly lie in improving methodology. On the other hand, the importance and means of achieving greater responsiveness in planning have been the subject of much debate.

Responsiveness is taken here to be intimately bound up with public participation in planning. The importance of public participation, and thus of responsiveness, stems from several sources, including its role in strengthening community identity and self-awareness (Nisbet, 1973) and encouraging more ready acceptance of plans and decisions, as well as generally promoting better community planning (Kaemmerer and Schwebel, 1977). Possible forms of public participation are numerous (Whitaker, 1980) and include lobbying and/or litigation by citizen groups (Cupps, 1977), minority or interest group representation on decision-making bodies (Cole, 1974) and citizen surveys of demands and preferences (Murrell and Schulte, 1980a and 1980b). However, whatever the means of incorporating community preferences into strategies for service provision, it should acknowledge the complexity of the situation.

The identification of community preferences for service provision is complicated in several ways. For example, planners and decision-makers have been forced to recognize that there is not one, homogeneous public, but a number of publics, each with its own set of preferences. Thus,

analyses of community preferences or demands need to identify these preference sub-sets and the nature and degree of differences or incompatibilities among them. Furthermore, those responsible for providing public services are faced with constraints on the nature and quality of services that can be supplied. Public concern is widespread over increases in taxes and the manner in which these funds are expended by officials (Hennigh, 1978). In California, this concern culminated in Proposition 13, which limits the level of state and municipal taxation and requires officials to provide services on a reduced budget. A dilemma which results is that residents have certain demands for services, yet at the same time they are reluctant to pay the taxes which would be necessary to finance the services at the desired levels. Such financial constraints require that trade-offs be made among the various services and it is usually left to decision-makers to make these trade-offs on behalf of the community.

The intention of this report is to outline a methodologically rigorous tool (a trade-off game) for the eliciting of community preferences for municipal public services (i.e., public services funded wholly or in part from municipal property taxes) and to demonstrate its application in the Township of Erin, Wellington County. As well as illustrating the major features of the trade-off game, the case study is used to empirically evaluate the sensitivity of community preferences to changes in budgetary conditions (e.g., preferences when more money is available for service provision versus those when funding is being cut back).

The remainder of the report is organized as follows. The nature of

the trade-off methodology and the development of the Erin Township game is outlined in Section Two. The structure of the case study and the major characteristics of the survey respondents are discussed in Section Three. Sections Four and Five present detailed results on community preferences for 13 municipal services under three budget scenarios (fixed, decreased and increased). Section Six is an overview emphasizing the possible applications of the methodology.

SECTION TWO

ELICITING COMMUNITY PREFERENCES

2.1 Preference Measurement

Perhaps the most accurate indicator of preferences is the behaviour or choices that people actually make when confronted with a variety of conditions (Scitovsky, 1971). The main advantage of inferring preferences from behaviour is that choices are made in a realistic environment, where options are limited and individuals may face budget and other constraints. Such preferences inferred from behaviour, or 'operative values' as opposed to 'conceived values' (Peterson, 1968), have been observed via market and consumer surveys, simulation models, and origin-destination traffic surveys among others, to assist the prediction of future behaviour (e.g., MacCrimmon and Toda, 1969).

This revealed behaviour approach to measuring preferences has a number of limitations when applied to the question of preferences for public services. To begin with, these techniques assume implicitly that the conditions or environments within which choices are made cannot be changed (Robinson et al., 1975). Thus, preferences revealed by behaviour do not embrace alternatives outside the range of current options. For providers of public services this is a serious weakness, since they are interested in preferences not just for existing service options, but also for alternative sets of services, which may or may not be available at present. It might be argued that alternative service packages should be provided on an experimental basis and put to 'consumer test' (Webber, 1973). However, unlike a new consumer product, alternative sets of public services along with their associated costs

are difficult to institute on a trial basis. For instance, an alternative road system would be very costly to provide and the option of not using the system, and thus saving on the cost, would not really be available to individual members of the public.

An alternative approach to preference measurement is to elicit information from individuals on attitudes or opinions via surveys. The simplest instruments involve direct questions concerning preferences for, or satisfaction with, current services (e.g., Metcalf, 1968; Reynolds and Nicholson, 1970). While such surveys may direct public decision-makers to improve one service rather than another, they do not provide information on preferences for services or levels of service currently not available. Of course, respondents might be asked to rate or rank alternative services or service levels. However, the major disadvantage of this approach would remain, namely that individuals are required neither to evaluate services relative to each other nor to indicate the trade-offs they would prefer if the provision of desireable levels of all services was not possible (Hoinville, 1971). If questions about preferences are asked under unconstrained conditions, the extent to which respondents are prepared to sacrifice a little of one service to attain an improvement in another service cannot be ascertained.

The limitations of the survey approach have prompted the development of various comparison and ranking schemes from which preference scales are constructed (Knight and Menchik, 1974; Golob et al., 1972). In the public services context, a paired comparison experiment could be based upon a set of service 'packages', each comprising different combinations of service levels. With this method, each service package would be

constrained within some total budget for service provision. Unfortunately, this approach becomes impractical once more than two or three services (each with several possible levels) are being evaluated simultaneously. Simply, it would not be possible to pair all of the numerous potential combinations of service levels.

It should be apparent from this brief review that a comprehensive approach to measuring preferences for public services should somehow permit individuals to assess alternatives not currently available and should also require them to indicate the trade-offs they would make when financial or other constraints preclude choosing the optimum level for all services. An instrument which has considerable utility in this regard is the trade-off game.

2.2 Trade-Off Games

Trade-off instruments are 'games' in the sense that there is one player who, given his conflicting goals, makes 'moves' or decisions in order to 'win' or improve his position. Thus trade-offs are made whereby the player incurs a loss to achieve a greater gain (Robinson et al., 1975). Examples of the use of trade-off games for eliciting constrained preferences are provided by Wilson (1962), Hoinville (1971) and Robinson et al. (1975).

The basic principle of trade-off games in planning is that players (respondents) are confronted with a number of environmental attributes (in this case public services) each with several possible quality levels. Each attribute level has an associated cost, measured in dollars, points or whatever. Respondents are allocated a budget and are

allowed to purchase the quality levels they desire. However, by making the total budget insufficient to permit purchase of the highest levels of all attributes, trade-offs are forced. Players can reallocate their budgets among the alternative attribute levels until they achieve the most satisfactory combination.

Robinson et al. (1975) stress the advantages of starting with the budget and attribute levels that are currently used or available to individuals, so that respondents can use their current situation as a 'benchmark'. Respondents are then able to improve upon the quality of one attribute only by sacrificing the quality of one or more of the other attributes. In this way, individuals indicate the direction in which they would prefer changes to occur from the current situation given the finite budget and the costs of alternative levels of services (Hoinville, 1971). Clearly, the method could be developed to examine the degree to which respondents might trade-off attributes in order to gain some quality level of an attribute currently not available.

The trade-off game method would seem to have ready applicability to the problem of determining community preferences for municipal public services. Municipalities supply and fund a range of services and it is technically possible for most of them to be provided at an improved, or at a reduced, level. Given that the municipal budget is limited, which services would residents prefer to have upgraded first, and to what degree, and what variability in constrained preferences is apparent within the community? Although municipal services are not paid for directly by the user, they are financed by the residents in the form of taxes, so each service has associated with it an indirect cost to each

resident. Thus, a trade-off game can be constructed, specifying alternative service levels and associated costs, in order to identify the constrained preferences for municipal services of members of a community.

However, two problems with the trade-off approach in the public services context are evident. Firstly, the method requires information on the costs of alternative service levels to establish the budget functions. Although straightforward in theory, the 'pricing' of publicly provided services is a time-consuming and perplexing task (Archer, 1973), often because service agencies supplying complex services, such as education, do not isolate the costs of specific attributes or segments of the total service.

The second problem is more fundamental. The whole point of the trade-off technique is to force respondents to operate in a multidimensional choice space; that is, to consider all levels of service attributes and their associated costs simultaneously, so that decisions are made within a realistic set of constraints. However, there is evidence to suggest that such tasks might be beyond the information-processing capabilities of most people (Pollio, 1974). Clearly, it is difficult to maintain simplicity for respondents and yet approach the complex reality of multi-choice situations (Hoinville, 1971). This difficulty can be mollified in trade-off games by affording respondents the opportunity to re-examine choices after the initial trade-offs are made. In this way, respondents approach their preferred combination of service levels iteratively.

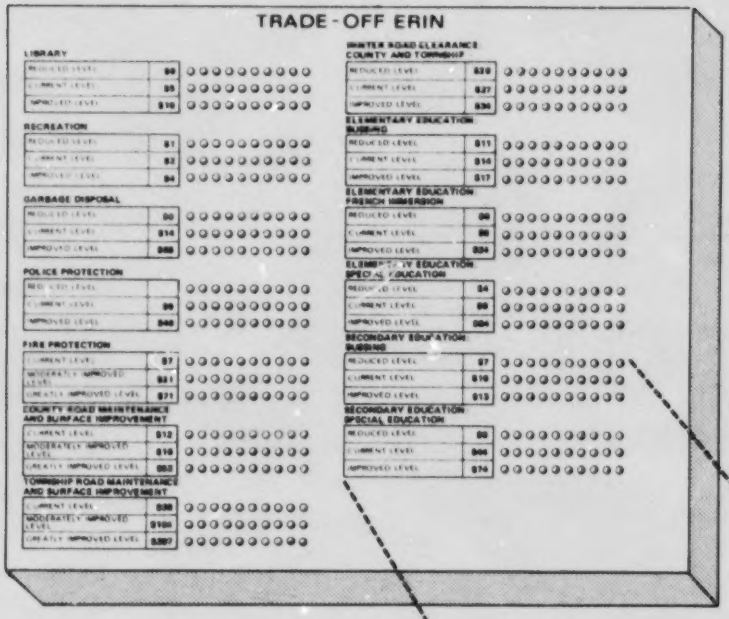
2.3 The Erin Township Game

The development of the Erin Township trade-off game began with a survey of local governments and supply agencies to obtain detailed information on the level and cost of municipal services available to residents of Erin Township. In addition, information on feasible alternative levels of services and associated costs was elicited. A detailed outline of the data base is provided in Joseph, Smit and Poyner (1980). Summary descriptions of current and alternative service levels and associated costs for 13 services or service components (Appendix 1) provide the data foundation for the trade-off game.

The trade-off game for Erin Township is shown in Figure 1. For all services, alternatives were identified on the assumption that changes, in whatever direction, should affect all residents in the same way. Thus, an upgrading of gravel road surfaces would be for all gravel roads and not a selected few. For township-based services this unformity pertains to the township, whereas for county-based service it pertains to the the whole county. The dollar cost associated with each service level is the cost in property tax to the average taxpayer in the township. Dollar resources were represented physically by removable coloured pegs.

Following a period of familiarization, each respondent was allowed to reallocate funds to improve or reduce levels of service. Reallocation ceased when respondents reached a point where desired improvements would necessitate unacceptable reductions in other services. The game was played three times by each respondent, the first time with a fixed budget (the sum of current allocations), then with a

FIGURE 1 THE TRADE-OFF GAME



SECONDARY EDUCATION: BUSSING

REDUCED LEVEL: MAXIMUM TRIP DURATION FOR STUDENTS IS 70 min.	$7
CURRENT LEVEL: MAXIMUM TRIP DURATION FOR STUDENTS IS 60 min.	$10
IMPROVED LEVEL: MAXIMUM TRIP DURATION FOR STUDENTS IS 50 min.	$13

SECONDARY EDUCATION: SPECIAL EDUCATION

REDUCED LEVEL: 0 SCHOOLS IN WELLINGTON COUNTY WITH FACILITIES FOR THE PHYSICALLY HANDICAPPED 0 SCHOOLS IN WELLINGTON COUNTY WITH VOCATIONAL PROGRAMS 0 SCHOOLS IN WELLINGTON COUNTY WITH OCCUPATIONS AND SERVICES	$0
CURRENT LEVEL: 1 SCHOOL IN WELLINGTON COUNTY WITH FALCILITIES FOR THE PHYSICALLY HANDICAPPED 7 SCHOOLS IN WELLINGTON COUNTY WITH VOCATIONAL PROGRAMS 3 SCHOOLS IN WELLINGTON COUNTY WITH OCCUPATIONS AND SERVICES	$44
IMPROVED LEVEL: ALL SCHOOLS IN WELLINGTON COUNTY WITH FACILITIES FOR THE PHYSICALLY HANDICAPPED ALL SCHOOLS IN WELLINGTON COUNTY WITH VOCATIONAL PROGRAMS ALL SCHOOLS IN WELLINGTON COUNTY WITH OCCUPATIONS AND SERVICES	$74

BEST COPY AVAILABLE

(10%) decreased budget, and finally with an (10%) increased budget. In the second and third applications of the game, each respondent started with their preferred allocations after the first, fixed budget game. In each version of the game, respondents were allowed to reallocate any amount they wished (in dollar units), so the alternative levels given for each service represent indicators of the service quality change associated with a given monetary change, rather than the only levels possible.

SECTION THREE

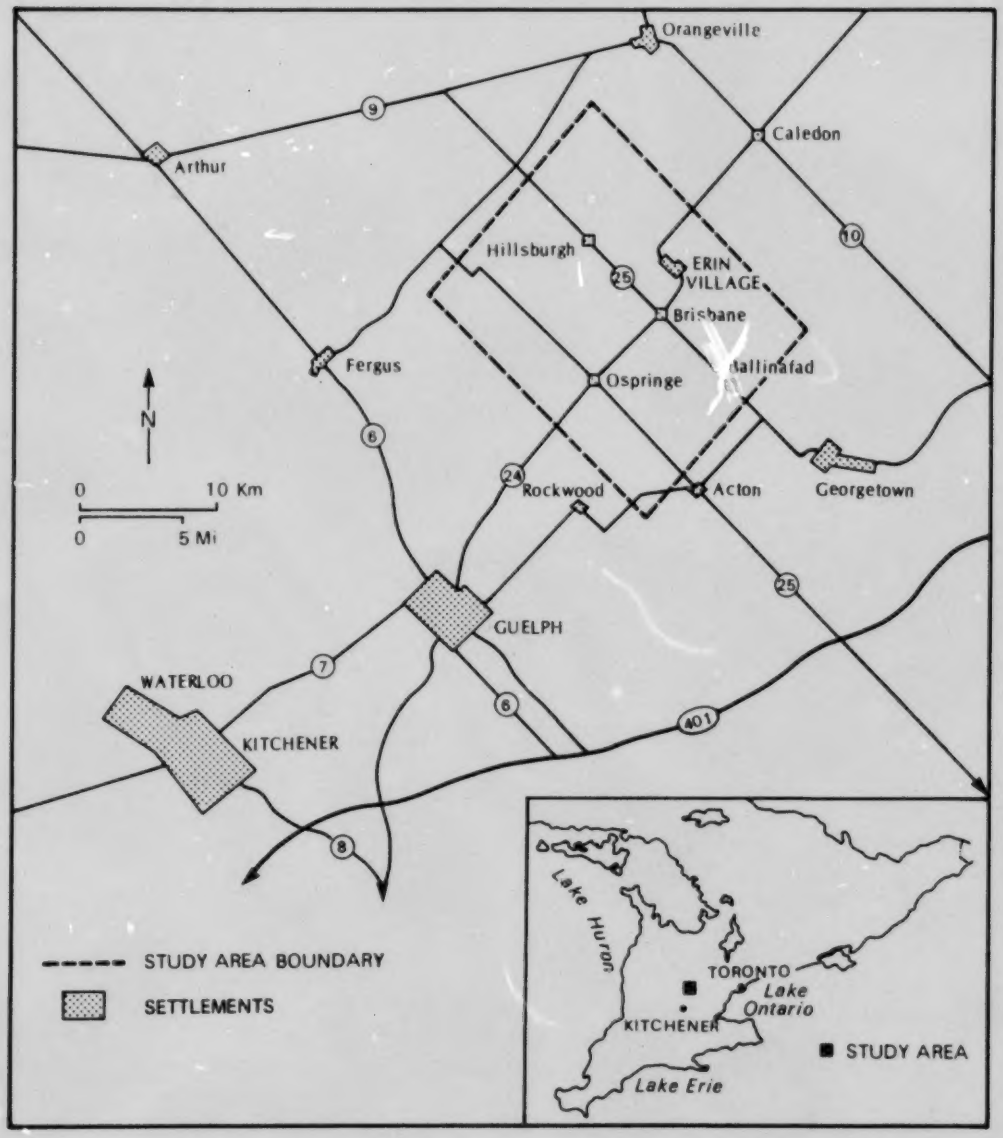
THE CASE STUDY

3.1 The Study Area

The case study was carried out in the Township of Erin, Wellington County (Figure 2). The township, with a population in 1976 of 5,349, is fairly typical of rural areas on the fringe of metropolitan regions, in this case Toronto and Kitchener-Waterloo. Although the township remains 'rural' in nature, the nonfarm population now outnumbers the farm population to the order of 5 to 1. This low density residential development has important implications for the provision of a wide range of municipally-based public services such as road maintenance, water and sewage, education, garbage disposal and recreation. The costs of providing these services are often increased by the discontinuous nature of rural residential development (Archer, 1973). It has been argued that because municipal services are usually organized and funded on a community-wide basis, it is rare for the total costs of service provision for nonfarm residential development to be passed on to those who reap the benefits (Archer, 1973; Greenwood, 1975; Bryant and Russwurm, 1979). Such externalities may become apparent to the rural community only when they are embodied in planning controls or property taxes (Krueger, 1957; Hennigh, 1978).

Although it is often argued that newcomers almost always press for new services (Schwarzweller, 1979; Healy, 1976), it has also been pointed out that new residents expand the municipal tax base, and may even shun many services in their quest for a rural lifestyle (Bryant and

FIGURE 2 THE STUDY AREA



Russwurm, 1979). In reality, the extent to which changed demands for services result from the different demands of new residents, from changes in the demands of old residents, from shifts in societal values, or simply from an increase in the community population is difficult to assess. Whatever its origin, the basic problem of satisfying an increased demand for services confronts municipal planners and decision-makers, who, in turn, require information on resident preferences for alternative types and levels of service.

3.2 The Sample

The trade-off game, together with a questionnaire (Appendix 2) collecting data on selected characteristics of respondents, was applied to adult representatives of 122 households in Erin Township. Interviewing took place in the summer and fall of 1981 and each interview took, on the average, one hour to complete.

The characteristics of the respondent group are summarized in Table 1. The sample is characterized by a preponderance of relatively young households in which the respondent is relatively well educated and either the respondent or the spouse is employed in a mid-status to high-status occupation. This majority of respondent households tends to be financially secure and relatively new or moderately established in terms of length of residence. On the other hand, two minority sub-groups in the sample are identifiable; one characterized by above average age, retired or unemployed occupational status, lower than average education and longer than average length of residence, and the other by below average income and education.

TABLE 1 SELECTED CHARACTERISTICS OF THE SAMPLE

Age (years)	#	(%)
≤ 35	48	(39.3)
36 - 55	51	(41.8)
55 >	23	(18.9)

Gender	#	(%)
Male	38	(31.1)
Female	84	(68.9)

Education Level	#	(%)
< Grade 8	8	(6.6)
Grades 8 to 13	65	(53.3)
Some College or University	22	(18.0)
University or College Degree	27	(22.1)

Occupation	#	(%)
Houseperson	53	(43.8)
Retired or Unemployed	15	(12.4)
Professional or Management	26	(21.5)
Labour or Clerical	25	(20.7)
Other	3	(1.6)

Household Income (per annum)	#	(%)
< $10,000	4	(3.9)
$10,000 - 20,000	29	(28.4)
$20,001 - 30,000	33	(32.5)
$30,001 - 40,000	18	(17.6)
$40,001 - 50,000	9	(8.8)
> $50,000	9	(8.8)

Length of Residence in Erin (years)	#	(%)
≤ 5	61	(50.0)
6 - 15	41	(33.6)
> 15	20	(16.4)

Location	#	(%)
Rural Erin	92	(75.4)
Village of Hillsburgh	30	(24.6)

These generalizations are based upon a cross-tabulation and Chi-Square analysis of the respondent characteristics outlined in Table 1. It is inappropriate to present that analysis in detail here, but its major features are summarized in Table 2. These data suggest a considerable degree of inter-correlation between respondent characteristics, which is of course to be expected. For example, higher levels of educational attainment are associated with professional occupations and higher levels of household income. In addition, older respondents are more likely to be male, to have a lower level of educational attainment, to be retired, to be well established residents of the township and to have a relatively low household income. The least inter-correlated of the respondent characteristics is location (village versus rural), which is associated significantly with length of residence only; proportionately more of the rural residents are well established.

Of particular interest in Table 2 is the strong association between length of residence and the socio-economic characteristics, education, occupation and income. Length of residence is often taken to be an important discriminator (e.g., newcomers versus oldtimers) of preferences for service provision (see Section One). In this township, as in others that have experienced rapid and substantial exurban residential development, newer residents tend to have more formal education, professional/managerial occupations and a higher household income.

Respondent families vary also with respect to their use of the selected municipal services (Table 3). For the calculation of

TABLE 2 CROSS-TABULATION OF RESPONDENT CHARACTERISTICS

	Age	Gender	Education Level	Occupation	Household Income	Length of Residence	Location
Age		*	*	*	*	*	
Gender			*	*			
Education Level				*	*	*	
Occupation					*	*	
Household Income						*	
Length of Residence							*
Location							

Note: * denotes a difference significant at the .05 level.

TABLE 3 USE OF SERVICES

Service	Use of Service: Yes n (%)	Use of Service: No n (%)
Library[1]	42 (34.4)	80 (65.6)
Recreation[1]	50 (41.0)	72 (59.0)
Garbage Collection[1]	75 (61.5)	47 (38.5)
Township Dump[1]	68 (55.7)	54 (44.3)
Police Service[2]	57 (46.7)	65 (53.3)
Fire Service[2]	26 (21.3)	96 (78.7)
El. Ed. Bussing[3]	48 (39.3)	74 (60.7)
El. Ed. French Imm.[3]	12 (9.8)	110 (9C.2)
El. Ed. Special Ed.[3]	6 (4.9)	116 (95.1)
Sec. Ed. Bussing[3]	36 (29.5)	86 (70.5)
Sec. Ed. Special Ed.[3]	2 (1.6)	120 (98.4)

Note: Definition of Use

1. Use by household in previous twelve months.
2. Use while resident in Erin Township.
3. Use during 1981.

utilization rates all respondents were assumed to be road users and the garbage disposal service users were divided into two sub-groups to reflect the use of a private collection service by some residents.

SECTION FOUR

PREFERENCE PATTERNS: Scenario 1

In Section Two it was suggested that constrained preferences for service provision elicited through an instrument like the trade-off game are more realistic than, and superior to, unconstrained preferences obtained through less sophisticated surveys. In light of this claim and to facilitate comparison, the unconstrained preferences of the Erin Township respondents are presented prior to discussion of the trade-off results.

4.1 Unconstrained Preferences

As an initial step in the interview, respondents were asked to indicate which of the 13 services or service components they would like improved, left the same, or reduced. The responses to this question (Table 4) underline earlier comments on the limitations of such, simple surveys. Without information on the cost of improving services, respandents tended either to want an improvement or to maintain the status quo. Yet most respondents would probably also prefer a reduction in taxes. Only in the case of French immersion was there any substantial minority in favour of a reduction and, in this instance, several of those who advocated a reduction indicated that their dissatisfaction was with the nature of the French immersion program in Wellington County rather than the service per se. The only real value of such (unconstrained) preferences is that they can be interpreted as a crude measure of relative priorities. Thus, the Erin Township responses could be taken to suggest that the respondents place first priority for improvement on road maintenance, second on police protection, and so on.

TABLE 4 UNCONSTRAINED PREFERENCES FOR SERVICES

Service	Improved n (%)	The Same n (%)	Reduced n (%)
Library	46 (37.7)	76 (62.3)	0 (0.0)
Recreation	57 (47.8)	61 (50.8)	2 (1.7)
Garbage Disposal	30 (25.0)	89 (74.2)	1 (0.8)
Police Protection	63 (52.1)	58 (47.5)	0 (0.0)
Fire Protection	26 (21.3)	96 (78.7)	0 (0.0)
County Roads	73 (59.8)	49 (40.2)	0 (0.0)
Township Roads	85 (69.7)	36 (29.5)	1 (0.8)
Winter Road Clearance	38 (31.7)	81 (66.4)	1 (0.8)
El. Ed. Bussing	14 (11.6)	100 (82.6)	7 (5.8)
El. Ed. French Imm.	20 (16.4)	78 (63.9)	23 (19.7)
El. Ed. Special Ed.	45 (37.2)	76 (62.8)	0 (0.0)
Sec. Ed. Bussing	15 (12.3)	101 (82.8)	6 (4.9)
Sec. Ed. Special	47 (38.8)	73 (60.3)	1 (0.8)

4.2 Constrained Preferences

4.2.1 General Preferences

Scenario 1 is that in which respondents were permitted to reallocate resources among services within the constraints of a budget fixed at the total of current expenditures.

The results for the trade-off game can be analyzed in a number of ways, but an appropriate starting point is the respondents' propensity to trade-off expenditures on services (Table 5). A number of respondents indicated a degree of dissatisfaction with the current allocation of funds for service provision by trading-off some services. On the other hand, almost 40 percent of the sample concluded, after considerable thought and experimentation, that they could not identify an expenditure pattern that they would prefer over the current one given a fixed budget. It has already been noted (Table 4) that earlier in the interview many of these respondents had indicated some dissatisfaction with the level of one or more services available in the township. Thus, the useful educational function of such trade-off games is apparent; respondents soon became aware of the limits imposed on service provision by budget constraints.

The results for particular services for which respondents sought improvements or reductions are provided in Table 6. For example, 23 respondents (18.9 percent) sought improvements in police protection, and were prepared to have less of their property tax money to go to other services to improve the police service, on average by $5.04 of the average tax bill. The data indicate that no change in expenditures was a frequent preference for all services and that there is considerable

TABLE 5 PROPENSITY TO TRADE-OFF SERVICE LEVELS: SCENARIO 1

Number of Dollars	Respondents n	(%)
0	47	(38.5)
1 - 5	41	(33.6)
6 - 10	30	(24.7)
11 - 15	2	(1.6)
16 - 20	2	(1.6)
Total	122	(100.0)

TABLE 6 FREQUENCY AND AMOUNT OF SERVICE TRADE-OFFS: SCENARIO 1

Service	Current Allocation ($)	Reductions Sought n (%)	mean ($)	(s.d.)	No Change n (%)	Improvements Sought n (%)	mean ($)	(s.d.)
1. Library	5	18 (14.8)	3.33	(0.69)	89 (73.0)	15 (12.3)	8.67	(3.13)
2. Recreation	2	4 (3.3)	0.50	(0.58)	92 (75.4)	26 (21.3)	4.69	(2.48)
3. Garbage Disposal	14	16 (13.1)	8.12	(3.32)	99 (81.1)	7 (5.7)	17.57	(3.21)
4. Police Protection	0	- (-)	-	(-)	99 (81.1)	23 (18.9)	5.04	(3.10)
5. Fire Protection	21	1 (6.8)	20.00	(0.00)	101 (82.8)	20 (16.4)	25.90	(6.80)
6. County Roads Maintenance & Improvement	12	5 (4.1)	8.20	(2.17)	95 (77.9)	22 (18.0)	17.32	(4.41)
7. Township Roads Maintenance & Improvement	38	7 (5.7)	31.28	(6.18)	88 (72.1)	27 (22.1)	43.11	(4.46)
8. Winter Roads Clearance	27	9 (7.4)	21.56	(3.78)	99 (81.1)	14 (11.5)	29.71	(1.86)
9. Elementary Education: Bussing	14	19 (15.6)	10.37	(2.03)	99 (81.1)	4 (3.3)	18.75	(1.26)
10. Elementary Education: French Immersion	6	43 (35.2)	2.30	(1.93)	76 (62.3)	3 (2.5)	9.67	(2.31)
11. Elementary Education: Special Education	8	4 (3.3)	4.50	(3.11)	95 (77.9)	23 (18.9)	13.17	(4.39)
12. Secondary Education: Bussing	10	17 (13.9)	6.47	(2.29)	102 (83.6)	3 (2.5)	14.33	(2.08)
13. Secondary Education: Special Education	44	21 (17.2)	31.52	(10.82)	95 (77.9)	6 (4.9)	47.33	(1.03)

variability in the directions in which people would prefer to see municipal expenditures change. Thus, while 12.3 percent of the respondents would prefer to see more spent on the library service, 14.8 percent are prepared to accept a reduction in library expenditures in order to improve the level of other services.

These results should be interpreted in light of the options indicated on the game board. For example, no preferences for a reduction in the police service are indicated in the results, but this option was not open to respondents because the municipality currently does not contribute anything towards the cost of police protection.

The mean preferred allocations are compared to the current budget allocations in Table 7. On average, residents seem prepared to accept slight reductions in garbage disposal, winter road clearance, French immersion, school bussing, and special education in secondary schools if they can receive improvements in library, recreation, police and fire protection, road maintenance, and special education in primary schools. Generally, the mean preferred allocations do not differ greatly from the current pattern of expenditures, though the preferred directions for change are readily apparent, particularly in the percentage change figures. At the same time, however, policy makers are interested in the variability about the mean responses, especially if particular groups of residents hold different views on changes in expenditures. For some services, such as fire protection, the preferences are quite consistent (only one individual sought a reduction) whereas for other services, such as library, there is less evidence of a commonly held community preference (18 individuals sought a reduction and 15 sought an

TABLE 7 MEAN PREFERRED ALLOCATIONS: SCENARIO 1

	Service	Current Level ($)	Preferred Allocation mean (s.d.)	Mean change from current level	% change from current level
1.	Library	5	5.20 (1.80)	0.20	4.00
2.	Recreation	2	2.52 (1.62)	0.52	26.00
3.	Garbage Disposal	14	13.43 (2.62)	-0.57	- 4.07
4.	Police Protection	0	0.95 (2.38)	0.95	-
5.	Fire Protection	21	21.80 (3.26)	0.80	3.80
6.	County Roads Maintenance & Improvement	12	12.80 (2.94)	0.80	6.66
7.	Township Roads Maintenance & Improvement	38	38.75 (3.75)	0.75	1.98
8.	Winter Roads Clearance	27	26.91 (2.09)	-0.09	- 0.33
9.	Elementary Education: Bussing	14	13.59 (1.82)	-0.41	- 2.93
10.	Elementary Education: French Immersion	6	4.79 (2.26)	-1.21	-20.17
11.	Elementary Education: Special Education	8	8.86 (2.91)	0.86	10.75
12.	Secondary Education: Bussing	10	9.62 (1.68)	-0.38	- 3.80
13.	Secondary Education: Special Education	44	42.02 (6.56)	-1.98	- 4.50

increase). In the following section the constrained preference data are analyzed for systematic differences between groups of residents within the township.

4.2.2 Differences in Preferences

As noted earlier, it is sometimes suggested that newcomers to rural areas, especially non-farmers, press more for improved services than do establised residents, especially farmers (Schwarzweller, 1979; Healy, 1976), yet others argue that these newcomers may not differ in their service demands, or may prefer lower levels of many services (Bryant and Russwurm, 1979). However, little evidence has been presented to substantiate or refute either contention. The data collected via the trade-off survey permit the empirical analysis of differences in preferences among groups of residents defined in terms of length of residence or any other designated characteristic. Of the numerous hypotheses suggested in the literature, four are examined here.

i) Residents who use a service will be more likely to seek an improvement in that service than residents who do not.

ii) Persons resident in the municipality for a shorter period of time will differ in their constrained preferences for services from longer term residents.

iii) Constrained preferences for services will differ between residents located in nucleated settlements and those resident in the countryside.

iv) Constrained preferences for services will vary among groups defined in terms of selected demographic and socio-economic characteristics.

In the evaluation of each of these hypotheses, differences in mean allocations (e.g., between users and non-users of a service) are tested for statistical significance using Student's t-test. This provides a means of readily distinguishing between differences that can safely be

assumed to exist in the population (from which our sample of households is drawn) and those that exist in the sample but cannot be safely assumed to exist in the population. The former differences are said to be 'significant' ones.

The hypothesis that people who use a service are more likely to seek improvement in that service than non-users is explored in Table 8. Since it is assumed that all residents use the roads, road services are not included in the analysis of user versus non-user preferences. In the case of garbage disposal a distinction is made once again between those who have a collection service and those who do not. For all but three of the services, garbage disposal (collection), recreation and fire protection, the mean preferred allocation of the user group is greater than that for non-users. However, differences are significant for two services only, French immersion and bussing at the secondary school level. Thus, although the results are broadly supportive of the user versus non-user hypothesis, the degree of difference evident is less than has often been suggested.

The mean preferred allocations for groups of residents identified according to length of residence in the township are presented in Table 9. Significant differences in mean preferences between these groups are few, notably well established (and probably older) residents wishing to see less priority put on the recreation service. In general, however, there is little evidence of major, systematic differences in constrained preferences among the residents according to length of residence. The assumption that such differences exist has generated considerable rhetoric on planning issues. Perhaps differences are apparent when

TABLE 8 MEAN ALLOCATIONS BY USE OF SERVICE: SCENARIO 1

Service	Current Level ($)	Users n	Users mean (s.d.)	Non-Users n	Non-Users mean (s.d.)
1. Library	5	42	5.52 (2.10)	80	5.04 (1.61)
2. Recreation	2	50	2.50 (1.54)	72	2.54 (1.69)
3. Garbage Disposal (Collection)	14	75	13.09 (2.63)	47	13.98 (2.53)
4. Garbage Disposal (No Collection)	14	68	13.72 (2.82)	54	13.07 (2.32)
5. Police Protection	0	57	1.16 (2.77)	65	0.77 (1.98)
6. Fire Protection	21	26	21.62 (1.42)	96	21.84 (3.60)
7. Elementary Education: Bussing	14	48	13.77 (1.69)	74	13.47 (1.90)
8. Elementary Education: French Immersion	6	12	6.42 (1.44)	110	4.61 (2.26)
9. Elementary Education: Special Education	8	6	12.00 (8.37)	116	8.70 (2.31)
10. Secondary Education: Bussing	10	36	9.97 (1.06)	86	9.46 (1.87)
11. Secondary Education: Special Education	44	2	45.00 (1.41)	120	41.97 (6.60)

⌊_____⌋ significant at the 0.05 level.

TABLE 9 MEAN ALLOCATIONS BY LENGTH OF RESIDENCE: SCENARIO 1

Service	Current Level ($)	Length of Residence ≤ 5 years (n=61) mean (s.d.)	6-15 years (n=41) mean (s.d.)	> 15 years (n=20) mean (s.d.)
1. Library	5	5.11 (1.76)	5.39 (2.19)	5.10 (0.79)
2. Recreation	2	2.49 (1.12)	2.88 (2.38)	1.90 (0.45)
3. Garbage Disposal	14	13.33 (3.10)	13.46 (1.86)	13.70 (2.45)
4. Police Protection	0	1.31 (3.00)	0.56 (1.52)	0.65 (1.42)
5. Fire Protection	21	22.08 (4.27)	21.58 (2.02)	21.35 (0.88)
6. County Roads Maintenance & Improvement	12	12.43 (2.20)	13.24 (3.60)	13.05 (3.38)
7. Township Roads Maintenance & Improvement	38	38.06 (2.75)	39.83 (5.28)	38.60 (1.67)
8. Winter Roads Clearance	27	26.85 (1.71)	27.17 (2.74)	26.55 (1.57)
9. Elementary Education: Bussing	14	13.38 (1.81)	13.66 (2.01)	14.10 (1.33)
10. Elementary Education: French Immersion	6	5.03 (2.11)	4.73 (2.42)	4.15 (2.32)
11. Elementary Education: Special Education	8	8.80 (2.13)	9.02 (4.04)	8.70 (2.30)
12. Secondary Education Bussing	10	9.80 (0.96)	9.10 (2.43)	10.10 (1.33)
13. Secondary Education: Special Education	44	42.61 (5.09)	40.68 (9.13)	42.95 (3.27)

└——┘ significant at the 0.05 level

residents are asked simply, which services would you like to see improved? But when they are forced to recognize constraints on service provision, and are asked, which services are you prepared to trade-off in order to attain improvements in others?, few significant differences between established and new residents can be identified.

The proposition that preferences will differ between residents of the nucleated settlement (Hillsburgh) and those in the countryside is tested in Table 10. Differences in mean allocation are significantly different for two services, police protection and township roads. In both cases, the mean preferred allocation of the countryside dwellers is the higher of the two. This indicates that for these two services geographical variation in service quality or service need may be an influence on preferences. In the case of police protection, this result suggests a greater awareness of a need for better police protection on the part of (isolated) rural residents. For township roads the lower priority put upon maintenance and improvement by Hillsburgh residents probably reflects the generally better quality of roads in the Hillsburgh area in comparison with that in the rural periphery.

The suggestion that preferences will vary between groups defined in terms of demographic and socio-economic characteristics is evaluated using age (Table 11) and gender (Table 12) to represent the demographic dimension, and household income (Table 13), education (Table 14), and occupation (Table 15) to represent the socio-economic dimension. Of the two demographic variables, age is clearly the more powerful discriminator of preferences, while of the three socio-economic variables, differences in education and occupation better identify

TABLE 10 MEAN ALLOCATIONS BY RESIDENCE LOCATION: SCENARIO 1

Service	Current Level ($)	Location: Rural Erin (n=92) mean (s.d.)	Location: Village of Hillsburg (n=30) mean (s.d.)
1. Library	5	5.16 (1.94)	5.33 (1.30)
2. Recreation	2	2.39 (1.37)	2.93 (2.21)
3. Garbage Disposal	14	13.59 (2.48)	12.97 (3.01)
4. Police Protection	0	1.13 (2.62)	0.40 (1.30)
5. Fire Protection	21	21.82 (3.43)	21.73 (2.69)
6. County Roads Maintenance & Improvement	12	12.90 (3.06)	12.50 (2.56)
7. Township Roads Maintenance & Improvement	38	39.13 (3.75)	37.57 (3.54)
8. Winter Roads Clearance	27	26.96 (2.02)	26.77 (2.33)
9. Elementary Education: Bussing	14	13.55 (1.98)	13.70 (1.21)
10. Elementary Education: French Immersion	6	4.49 (2.36)	5.70 (1.62)
11. Elementary Education: Special Education	8	8.82 (2.46)	9.00 (4.04)
12. Secondary Education: Bussing	10	9.58 (1.85)	9.73 (1.05)
13. Secondary Education: Special Education	44	41.62 (7.18)	43.23 (3.97)

⌊——⌋ significant at the 0.05 level.

TABLE 11 MEAN ALLOCATIONS BY AGE: SCENARIO 1

Service	Current Level ($)	Age Group ≤ 35 years (n=45) mean (s.d.)	36-55 years (n=51) mean (s.d.)	> 55 years (n=23) mean (s.d.)
1. Library	5	5.14 (1.82)	5.07 (1.81)	5.61 (1.75)
2. Recreation	2	2.96 (2.25)	2.24 (0.76)	2.26 (1.29)
3. Garbage Disposal	14	12.85 (3.54)	13.82 (1.96)	13.78 (1.04)
4. Police Protection	0	1.33 (3.14)	1.02 (1.96)	0.00 (0.00)
5. Fire Protection	21	22.67 (5.01)	21.25 (0.82)	21.17 (0.65)
6. County Roads Maintenance & Improvement	12	12.94 (3.27)	12.72 (2.72)	12.70 (2.77)
7. Township Roads Maintenance & Improvement	38	38.50 (3.66)	39.04 (4.48)	38.61 (1.64)
8. Winter Roads Clearance	27	26.40 (2.80)	27.24 (1.57)	27.26 (0.86)
9. Elementary Education: Bussing	14	13.71 (2.67)	13.53 (1.72)	13.48 (1.47)
10. Elementary Education: French Immersion	6	4.88 (2.23)	4.31 (2.49)	5.65 (1.40)
11. Elementary Education: Special Education	8	9.29 (3.57)	8.80 (2.73)	8.09 (1.24)
12. Secondary Education: Bussing	10	9.52 (1.68)	9.84 (1.72)	9.30 (1.61)
13. Secondary Education Special Education	44	41.23 (8.65)	42.27 (5.35)	43.09 (2.98)

_____ significant at the 0.05 level.

TABLE 12 MEAN ALLOCATIONS BY GENDER: SCENARIO 1

Service	Current Level ($)	Gender Male (n=38) mean (s.d.)	Gender Female (n=84) mean (s.d.)
1. Library	5	5.34 (1.74)	5.14 (1.83)
2. Recreation	2	2.50 (1.22)	2.54 (1.78)
3. Garbage Disposal	14	13.42 (1.95)	13.44 (2.88)
4. Police Protection	0	0.60 (1.65)	1.11 (2.64)
5. Fire Protection	21	21.13 (0.84)	22.10 (3.85)
6. County Roads Maintenance & Improvement	12	12.66 (2.85)	12.87 (2.99)
7. Township Roads Maintenance & Improvement	38	38.79 (1.79)	38.73 (4.36)
8. Winter Roads Clearance	27	26.95 (2.82)	26.89 (1.68)
9. Elementary Education: Bussing	14	13.47 (1.59)	13.64 (1.92)
10. Elementary Education: French Immersion	6	5.16 (1.73)	4.62 (2.45)
11. Elementary Education: Special Education	8	8.37 (1.67)	9.08 (3.31)
12. Secondary Education: Bussing	10	9.29 (1.72)	9.76 (1.66)
13. Secondary Education: Special Education	44	43.45 (1.96)	41.37 (7.72)

_____ significant at the 0.05 level.

TABLE 13 MEAN ALLOCATIONS BY HOUSEHOLD INCOME: SCENARIO 1

Service	Current Level ($)	Income Group $20,000 or less (n=33) mean (s.d.)	$20,000-40,000 (n=51) mean (s.d.)	$40,000 or more (n=18) mean (s.d.)
1. Library	5	4.97 (1.29)	5.14 (1.73)	5.61 (2.77)
2. Recreation	2	2.58 (2.00)	2.41 (1.10)	2.56 (1.10)
3. Garbage Disposal	14	13.39 (2.70)	13.25 (3.10)	13.83 (1.86)
4. Police Protection	0	0.79 (2.78)	1.00 (2.22)	1.61 (2.93)
5. Fire Protection	21	22.15 (5.22)	21.51 (1.82)	21.06 (0.42)
6. County Roads Maintenance & Improvement	12	12.61 (2.36)	12.47 (2.66)	13.11 (2.63)
7. Township Roads Maintenance & Improvement	38	38.88 (2.68)	38.45 (2.93)	37.94 (4.68)
8. Winter Roads Clearance	27	26.52 (2.20)	26.80 (1.68)	27.78 (2.07)
9. Elementary Education: Bussing	14	13.33 (1.88)	13.72 (1.33)	13.50 (2.41)
10. Elementary Education: French Immersion	6	5.18 (1.72)	5.14 (2.23)	4.28 (2.52)
11. Elementary Education: Special Education	8	9.15 (4.09)	8.67 (2.41)	8.50 (1.46)
12. Secondary Education: Bussing	10	9.58 (1.70)	10.02 (1.05)	9.39 (1.58)
13. Secondary Education: Special Education	44	41.82 (5.97)	42.80 (5.51)	42.39 (4.15)

⌊_____⌋ significant at the 0.05 level.

TABLE 14 MEAN ALLOCATIONS BY LEVEL OF EDUCATION: SCENARIO 1

Service	Current Level ($)	Level of Education: Grade 8 or less (n=8) mean (s.d.)	Grades 9-13 (n=65) mean (s.d.)	Some Coll./Univ. (n=22) mean (s.d.)	Coll./Univ. Degree (n=27) mean (s.d.)
1. Library	5	5.00 (0.00)	5.22 (1.40)	5.23 (1.27)	5.22 (3.00)
2. Recreation	2	2.00 (0.00)	2.46 (1.65)	2.59 (2.15)	2.78 (1.28)
3. Garbage Disposal	14	12.75 (3.54)	13.31 (2.51)	13.86 (1.67)	13.59 (3.23)
4. Police Protection	0	0.38 (1.06)	0.71 (1.79)	1.64 (3.72)	1.15 (2.51)
5. Fire Protection	21	21.38 (1.06)	21.57 (2.03)	21.23 (1.07)	22.92 (6.01)
6. County Roads Maintenance and Improvement	12	14.88 (4.52)	13.02 (3.05)	12.86 (2.42)	11.63 (2.04)
7. Township Roads Maintenance and Improvement	38	38.38 (1.06)	39.46 (3.88)	38.45 (1.34)	37.37 (4.81)
8. Winter Roads Clearance	27	27.00 (0.00)	27.05 (1.95)	26.54 (3.49)	26.85 (0.99)
9. Elementary Education: Bussing	14	14.00 (0.00)	13.68 (1.62)	13.09 (2.45)	13.67 (1.94)
10. Elementary Education: French Immersion	6	4.50 (2.78)	4.86 (1.95)	5.27 (2.27)	4.30 (2.76)
11. Elementary Education: Special Education	8	8.00 (0.00)	8.35 (1.42)	9.36 (5.11)	9.92 (3.34)
12. Secondary Education: Bussing	10	10.00 (0.00)	9.31 (1.80)	9.77 (2.00)	10.11 (1.19)
13. Secondary Education: Special Education	44	42.75 (3.54)	42.51 (6.53)	41.18 (6.73)	41.30 (7.30)

⌊_____⌋ significant at the 0.05 level.

TABLE 15 MEAN ALLOCATION BY OCCUPATION: SCENARIO 1

Service	Current Level ($)	Occupational Group: Houseperson (n=53) mean (s.d.)	Ret./Unempl. (n=15) mean (s.d.)	Prof./Manag. (n=26) mean (s.d.)	Cler./Lab. (n=25) mean (s.d.)
1. Library	5	5.00 (1.00)	6.00 (2.07)	5.42 (3.01)	4.72 (0.68)
2. Recreation	2	2.47 (1.96)	2.07 (0.96)	2.96 (1.28)	2.32 (1.22)
3. Garbage Disposal	14	13.64 (2.12)	14.00 (0.00)	13.65 (3.16)	12.56 (3.52)
4. Police Protection	0	0.85 (1.92)	0.00 (0.00)	1.88 (3.72)	0.76 (2.09)
5. Fire Protection	21	21.70 (2.14)	21.20 (0.78)	22.50 (5.91)	21.72 (2.44)
6. County Roads Maintenance and Improvement	12	12.81 (2.81)	12.80 (3.38)	12.31 (1.16)	13.40 (4.19)
7. Township Roads Maintenance and Improvement	38	39.23 (4.32)	38.67 (1.80)	37.50 (4.30)	39.16 (2.59)
8. Winter Roads Clearance	27	26.89 (2.00)	27.20 (0.78)	27.42 (1.47)	26.64 (2.50)
9. Elementary Education: Bussing	14	13.64 (1.86)	13.67 (1.29)	13.54 (2.39)	13.64 (1.15)
10. Elementary Education: French Immersion	6	4.74 (2.27)	5.40 (1.68)	4.42 (2.77)	4.92 (2.06)
11. Elementary Education: Special Education	8	9.23 (3.91)	7.80 (0.78)	8.69 (1.76)	8.56 (1.78)
12. Secondary Education: Bussing	10	9.79 (2.00)	9.47 (1.46)	9.50 (1.36)	9.60 (1.19)
13. Secondary Education: Special Education	44	41.09 (8.20)	42.73 (2.89)	41.19 (7.26)	43.96 (1.40)

└——┘ significant at the 0.05 level.

service-related interest groups than do differences in household income. This result is perhaps surprising given the importance often attached to income as a socio-economic surrogate for all sorts of attitudes and preferences, but it is supported by earlier work using the trade-off methodology (Smit and Joseph, 1982).

4.2.3 Summary

One of the most striking features of the results for Scenario 1 is the low incidence of trade-offs on the part of the respondents. The low propensity to trade-off reflects relative satisfaction with the current allocation of resources, though not necessarily with the levels of service available. Indeed, the unconstrained preferences suggest a much stronger desire for improvement in services than is reflected in the constrained preferences. Thus, it is probable that the low propensity to trade-off reflects a reluctance to sacrifice service in one area to improve another as much as general satisfaction with the current allocation pattern.

Scenario 1 has provided a valuable example of the educational properties of the trade-off game - respondents quickly learned that if resources are fixed, trade-offs (and they often turn out to be unacceptable) have to be made to improve any particular service or set of services. However, the analysis under Scenario 1 does not indicate whether respondents would prefer to pay more taxes to improve services or if they would be willing to sacrifice levels of service provision for lowered taxes, if given the option. Additionally, would the overall priorities revealed by the game be different if respondents were faced with an expanded or a reduced budget rather than a fixed one?

SECTION FIVE

PREFERENCE PATTERNS UNDER VARIABLE BUDGETS

This section examines the constrained preferences of Erin Township residents for service provision elicited under two hypothetical budget scenarios; in the first respondents were asked to accommodate a 10 percent reduction in (real) budget and in the second they were required to respond to a 10 percent (real) increase.

5.1 Scenario 2

This scenario required respondents to reduce the total allocation by 10 percent ($20) below the original (Scenario 1) budget. The starting point for respondents was their set of preferred allocations at the end of Scenario 1. In concert with the budget reduction, respondents were urged to re-evaluate their overall allocation of resources.

5.1.1 General Preferences

The general pattern of mean preferred allocations in Scenario 2 is of course dominated by declines (Table 16). It is thus notable that three services, police protection, fire protection and special education at the elementary level, receive mean increases. In addition, the percentage change values reveal that reductions are not uniformly distributed, ranging from -2.00 percent for recreation to -39.33 percent for French immersion. The breadth of this distribution reflects the fact that the 10 percent budget reduction was applied in conjunction with a reallocation of resources among services.

The impact of the budget reductions on the propensity to trade-off is well illustrated in Table 17. In contrast to Scenario 1 (Table 6),

TABLE 16 MEAN PREFERRED ALLOCATIONS: SCENARIO 2

	Service	Current Level ($)	Preferred Allocation mean (s.d.)	Mean change from current level	% change from current level
1.	Library	5	3.84 (2.49)	-1.16	-23.20
2.	Recreation	2	1.96 (1.77)	-0.04	- 2.00
3.	Garbage Disposal	14	11.03 (3.62)	-2.97	-21.25
4.	Police Protection	0	0.83 (2.24)	0.83	-
5.	Fire Protection	21	21.60 (3.15)	0.60	2.88
6.	County Roads Maintenance & Improvement	12	11.36 (3.63)	-0.64	- 5.33
7.	Township Roads Maintenance & Improvement	38	34.58 (6.15)	-3.42	- 9.00
8.	Winter Roads Clearance	27	24.96 (3.54)	-2.04	- 7.56
9.	Elementary Education: Bussing	14	12.45 (2.67)	-1.55	-11.07
10.	Elementary Education: French Immersion	6	3.64 (2.63)	-2.36	-39.33
11.	Elementary Education: Special Education	8	8.36 (2.95)	0.36	4.50
12.	Secondary Education: Bussing	10	8.48 (2.44)	-1.52	-15.20
13.	Secondary Education: Special Education	44	37.96 (7.75)	-6.04	-13.72

TABLE 17 FREQUENCY AND AMOUNT OF SERVICE TRADE-OFFS: SCENARIO 2

Service	Current Allocation ($)	Reductions Sought n (%)	mean ($)	(s.d.)	No Change n (%)	Improvements Sought n (%)	mean ($)	(s.d.)
1. Library	5	66 (54.1)	2.23	(1.50)	46 (37.7)	10 (8.2)	9.20	(3.01)
2. Recreation	2	37 (30.3)	0.43	(0.50)	68 (55.7)	17 (13.9)	5.12	(2.67)
3. Garbage Disposal	14	76 (62.3)	9.17	(3.40)	45 (36.9)	1 (0.8)	19.00	(0.00)
4. Police Protection	0	- (-)	-	(-)	102 (83.6)	20 (16.4)	5.05	(3.09)
5. Fire Protection	21	7 (5.7)	19.57	(1.13)	97 (79.5)	18 (14.8)	25.61	(7.02)
6. County Roads Maintenance & Improvement	12	47 (38.5)	8.38	(2.72)	55 (45.1)	20 (16.4)	16.60	(3.73)
7. Township Roads Maintenance & Improvement	38	76 (62.3)	31.25	(4.63)	30 (24.6)	16 (13.1)	44.00	(4.90)
8. Winter Roads Clearance	27	57 (46.7)	22.14	(3.18)	56 (45.9)	9 (7.4)	30.11	(1.90)
9. Elementary Education: Bussing	14	60 (49.2)	10.55	(2.45)	58 (47.5)	4 (3.3)	18.50	(1.29)
10. Elementary Education: French Immersion	6	76 (62.3)	2.06	(1.96)	43 (35.2)	3 (2.5)	9.67	(2.31)
11. Elementary Education: Special Education	8	18 (14.8)	5.00	(2.50)	84 (68.9)	20 (16.4)	12.90	(4.09)
12. Secondary Education: Bussing	10	60 (49.2)	6.70	(2.18)	59 (48.4)	3 (2.5)	14.33	(2.08)
13. Secondary Education: Special Education	44	78 (63.9)	34.46	(7.72)	41 (33.6)	3 (2.5)	46.33	(1.53)

TABLE 18 MEAN ALLOCATIONS BY USE OF SERVICE: SCENARIO 2

	Service	Current Level ($)	Users n	Users mean (s.d.)	Non-Users n	Non-Users mean (s.d.)
1.	Library	5	42	4.64 (2.54)	80	3.43 (2.37)
2.	Recreation	2	50	2.08 (1.72)	72	1.88 (1.81)
3.	Garbage Disposal (Collection)	14	75	10.67 (3.63)	47	11.62 (3.57)
4.	Garbage Disposal (No Coll.)	14	68	11.07 (3.57)	54	10.98 (3.73
5.	Police Protection	0	57	0.96 (2.52)	65	0.71 (1.97)
6.	Fire Protection	21	26	21.42 (1.42)	96	21.65 (3.48)
7.	Elementary Education: Bussing	14	48	12.75 (2.26)	74	12.26 (2.91)
8.	Elementary Education: French Immersion	6	12	5.00 (2.99)	110	3.49 (2.56)
9.	Elementary Education: Special Education	8	6	11.00 (6.45)	116	8.22 (2.64)
10.	Secondary Education: Bussing	10	36	9.25 (1.70)	86	8.16 (2.63)
11.	Secondary Education: Special Education	44	2	45.00 (1.41)	120	37.84 (7.76)

└——┘ significant at the 0.05 level.

TABLE 19 MEAN ALLOCATIONS BY LENGTH OF RESIDENCE: SCENARIO 2

Service	Current Level ($)	Length of Residence ≤ 5 years (n=61) mean (s.d.)	6-15 yrs. (n=41) mean (s.d.)	> 15 years (n=20) mean (s.d.)
1. Library	5	3.77 (2.31)	3.90 (2.99)	3.95 (1.87)
2. Recreation	2	1.98 (1.36)	2.21 (2.46)	1.35 (0.87)
3. Garbage Disposal	14	10.90 (3.83)	10.95 (3.72)	11.60 (2.76)
4. Police Protection	0	1.18 (2.83)	0.43 (1.34)	0.55 (1.39)
5. Fire Protection	21	21.81 (4.07)	21.58 (2.02)	20.95 (1.91)
6. County Roads Maintenance & Improvement	12	10.77 (2.88)	11.97 (4.24)	11.90 (4.16)
7. Township Roads Maintenance & Improvement	38	33.31 (4.86)	35.97 (7.68)	35.60 (5.60)
8. Winter Roads Clearance	27	24.75 (3.56)	25.09 (4.03)	25.30 (2.29)
9. Elementary Education: Bussing	14	12.00 (2.73)	12.87 (2.68)	12.95 (2.25)
10. Elementary Education: French Immersion	6	3.93 (2.56)	3.56 (2.66)	2.90 (2.69)
11. Elementary Education: Special Education	8	8.55 (2.35)	8.48 (3.53)	7.50 (3.23)
12. Secondary Education: Bussing	10	8.78 (1.96)	7.90 (2.91)	8.75 (2.57)
13. Secondary Education: Special Education	44	39.13 (6.32)	36.36 (9.93)	37.65 (6.17)

_____ significant at the 0.05 level.

TABLE 20 MEAN ALLOCATIONS BY RESIDENCE LOCATION: SCENARIO 2

Service	Current Level ($)	Location: Rural Erin (n=92) mean (s.d.)	Location: Village of Hillsburg (n=30) mean (s.d.)
1. Library	5	3.59 (2.62)	4.63 (1.85)
2. Recreation	2	1.73 (1.48)	2.67 (2.34)
3. Garbage Disposal	14	10.96 (3.65)	11.27 (3.60)
4. Police Protection	0	0.99 (2.46)	0.33 (1.27)
5. Fire Protection	21	21.68 (3.47)	21.33 (1.89)
6. County Roads Maintenance & Improvement	12	11.83 (3.59)	9.93 (3.42)
7. Township Roads Maintenance & Improvment	38	35.65 (6.08)	31.30 (5.19)
8. Winter Roads Clearance	27	25.35 (3.48)	23.77 (3.51)
9. Elemencary Education: Bussing	14	12.29 (2.89)	12.93 (1.80)
10. Elementary Education: French Immersion	6	3.26 (2.63)	4.80 (2.28)
11. Elementary Education: Special Education	8	8.25 (2.63)	8.70 (3.78)
12. Secondary Education: Bussing	10	8.24 (2.67)	9.23 (1.31)
13. Secondary Education: Special Education	44	37.26 (8.22)	40.10 (5.67)

⌊——⌋ significant at the 0.05 level.

TABLE 21 MEAN ALLOCATIONS BY AGE: SCENARIO 2

Service	Current Level ($)	Age Group ≤ 35 years (n=48) mean (s.d.)	36-55 years (n=51) mean (s.d.)	> 55 years (n=23) mean (s.d.)
1. Library	5	3.64 (2.38)	3.58 (2.49)	4.82 (2.53)
2. Recreation	2	2.35 (2.34)	1.60 (1.04)	1.91 (1.53)
3. Garbage Disposal	14	10.12 (4.42)	11.17 (3.15)	12.60 (1.82)
4. Police Protection	0	1.16 (2.94)	0.88 (1.88)	0.0 (0.0)
5. Fire Protection	21	22.29 (4.84)	21.21 (0.80)	21.00 (1.08)
6. County Roads Maintenance & Improvement	12	11.37 (3.61)	11.45 (3.38)	11.13 (4.27)
7. Township Roads Maintenance & Improvement	38	33.77 (5.97)	34.82 (6.55)	35.73 (5.61)
8. Winter Roads Clearance	27	24.22 (4.18)	25.07 (3.26)	26.21 (2.13)
9. Elementary Education: Bussing	14	12.72 (2.49)	12.33 (2.72)	12.13 (2.95)
10. Elementary Education: French Immersion	6	3.56 (2.72)	3.47 (2.67)	4.17 (2.32)
11. Elementary Education: Special Education	8	8.87 (3.16)	8.33 (2.91)	7.34 (2.34)
12. Secondary Education: Bussing	10	8.75 (2.16)	8.45 (2.62)	8.00 (2.55)
13. Secondary Education Special Education	44	38.02 (8.84)	38.86 (6.96)	35.82 (6.78)

_____ significant at the 0.05 level.

TABLE 22 MEAN ALLOCATIONS BY GENDER: SCENARIO 2

Service	Current Level ($)	Gender Male (n=38) mean (s.d.)	Gender Female (n=34) mean (s.d.)
1. Library	5	4.29 (2.42)	3.64 (2.51)
2. Recreation	2	2.08 (1.44)	1.90 (1.91)
3. Garbage Disposal	14	11.95 (3.06)	10.62 (3.80)
4. Police Protection	0	0.61 (1.65)	0.93 (2.46)
5. Fire Protection	21	21.05 (0.90)	21.85 (3.73)
6. County Roads Maintenace & Improvement	12	11.74 (3.61)	11.19 (3.64)
7. Township Roads Maintenance & Improvement	38	34.66 (5.46)	34.55 (6.49)
8. Winter Roads Clearance	27	25.00 (4.39)	24.94 (3.11)
9. Elementary Education: Bussing	14	12.24 (2.84)	12.55 (2.60)
10. Elementary Education: French Immersion	6	3.95 (2.36)	3.50 (2.74)
11. Elementary Education: Special Education	8	7.87 (1.99)	8.58 (3.28)
12. Secondary Education: Bussing	10	8.21 (2.42)	8.61 (2.45)
13. Secondary Education: Special Education	44	37.55 (5.84)	38.14 (8.50)

└─────┘ significant at the 0.05 level.

TABLE 23 MEAN ALLOCATIONS BY HOUSEHOLD INCOME: SCENARIO 2

Service	Current Level ($)	Income Group $20,000 or less (n=33) mean (s.d.)	$20,000-40,000 (n=51) mean (s.d.)	$40,000 or more (n=18) mean (s.d.)
1. Library	5	3.73 (2.21)	3.88 (2.16)	3.50 (3.55)
2. Recreation	2	2.00 (2.22)	1.84 (1.33)	1.89 (1.61)
3. Garbage Disposal	14	11.58 (2.74)	10.80 (4.12)	10.44 (4.33)
4. Police Protection	0	0.79 (2.78)	0.86 (2.15)	1.28 (2.32)
5. Fire Protection	21	22.00 (5.23)	21.24 (0.97)	21.06 (0.42)
6. County Roads Maintenance & Improvement	12	11.03 (4.05)	10.82 (3.01)	12.11 (2.72)
7. Township Roads Maintenance & Improvement	38	34.67 (6.19)	33.82 (5.06)	34.56 (4.91)
8. Winter Roads Clearance	27	24.88 (3.12)	24.51 (3.56)	25.61 (3.70)
9. Elementary Education: Bussing	14	12.09 (3.09)	12.49 (2.31)	12.33 (3.13)
10. Elementary Education: French Immersion	6	3.94 (2.40)	3.96 (2.72)	3.17 (2.71)
11. Elementary Education Special Education	8	8.58 (3.66)	8.35 (2.47)	7.94 (0.99)
12. Secondary Education Bussing	10	8.27 (3.12)	8.90 (1.93)	8.28 (1.93)
13. Secondary Education: Special Education	44	37.12 (7.50)	39.47 (6.39)	39.44 (6.48)

_____ significant at the 0.05 level.

TABLE 24 MEAN ALLOCATIONS BY LEVEL OF EDUCATION: SCENARIO 2

Service	Current Level ($)	Level of Education: Grade 8 or less (n=8) mean (s.d.)	Grades 9-13 (n=65) mean (s.d.)	Some Coll./Univ. (n=22) mean (s.d.)	Coll./Univ. Degree (n=27) mean (s.d.)
1. Library	5	4.12 (1.81)	3.68 (2.37)	3.64 (1.94)	4.33 (3.27)
2. Recreation	2	1.50 (0.93)	1.97 (1.71)	1.82 (2.50)	2.18 (1.39)
3. Garbage Disposal	14	11.38 (3.58)	11.05 (3.06)	10.77 (4.44)	11.11 (4.32)
4. Police Protection	0	0.38 (1.06)	0.60 (1.70)	1.36 (3.36)	1.07 (2.51)
5. Fire Protection	21	20.88 (1.88)	21.29 (1.56)	21.23 (1.07)	22.85 (6.01)
6. County Roads Maintenance and Improvement	12	12.88 (7.20)	11.71 (3.11)	12.04 (2.79)	9.52 (3.51)
7. Township Roads Maintenance and Improvement	38	37.12 (2.48)	35.20 (6.24)	34.50 (4.69)	32.41 (7.29)
8. Winter Roads Clearance	27	25.75 (2.38)	25.45 (3.10)	24.32 (5.36)	24.07 (2.85)
9. Elementary Education: Bussing	14	13.00 (1.93)	12.28 (2.96)	12.32 (2.63)	12.81 (2.17)
10. Elementary Education: French Immersion	6	2.25 (3.10)	3.80 (2.29)	3.82 (3.03)	3.52 (2.90)
11. Elementary Education: Special Education	8	7.38 (1.77)	7.78 (1.81)	8.54 (4.27)	9.89 (3.63)
12. Secondary Education: Bussing	10	9.00 (1.93)	8.20 (2.53)	8.04 (2.95)	9.37 (1.62)
13. Secondary Education: Special Education	44	35.12 (8.54)	38.31 (7.81)	38.27 (7.32)	37.70 (7.96)

⌊⌋ significant at the 0.05 level.

TABLE 25 MEAN ALLOCATIONS BY OCCUPATION: SCENARIO 2

Service	Current Level ($)	Occupational Group: Houseperson (n=53) mean (s.d.)	Ret./Unempl. (n=15) mean (s.d.)	Prof./Manag. (n=26) mean (s.d.)	Cler./Lab. (n=25) mean (s.d.)
1. Library	5	3.49 (1.97)	5.20 (3.00)	3.85 (3.53)	3.60 (1.61)
2. Recreation	2	1.79 (2.06)	1.87 (1.12)	2.27 (1.56)	1.88 (1.42)
3. Garbage Disposal	14	10.49 (3.50)	12.33 (2.77)	11.38 (3.87)	10.96 (4.16)
4. Police Protection	0	0.75 (1.83)	0.00 (0.00)	1.81 (3.74)	0.44 (1.26)
5. Fire Protection	21	21.62 (2.13)	20.93 (1.34)	22.42 (5.90)	21.16 (1.25)
6. County Roads Maintenance and Improvement	12	11.24 (3.53)	10.73 (5.47)	11.38 (2.21)	12.08 (3.89)
7. Township Roads Maintenance and Improvement	38	34.57 (6.93)	34.40 (6.52)	33.69 (6.18)	35.44 (4.42)
8. Winter Roads Clearance	27	25.08 (3.12)	26.60 (1.35)	24.65 (3.87)	24.48 (3.72)
9. Elementary Education: Bussing	14	12.75 (2.68)	12.53 (2.70)	12.35 (2.74)	12.32 (2.04)
10. Elementary Education: French Immersion	6	3.51 (2.66)	4.47 (1.96)	3.27 (3.08)	4.00 (2.29)
11. Elementary Education: Special Education	8	8.98 (3.58)	6.87 (2.36)	8.15 (1.40)	7.76 (2.42)
12. Secondary Education: Bussing	10	8.77 (2.66)	8.47 (1.73)	8.04 (2.32)	8.68 (1.89)
13. Secondary Education: Special Education	44	38.23 (8.98)	36.60 (6.32)	37.31 (7.83)	38.28 (5.96)

⌊_____⌋ significant at the 0.05 level.

the 'no change' option is less dominant; being the modal response for only five services, as opposed to all services under Scenario 1. As one might expect, the modal response for the other eight services is 'reductions sought'.

5.1.2 Differences in Preferences

The analysis of differences in preferences amongst different groups in the population follows the pattern set out for Scenario 1 in Section 4.2.2.. The data in Tables 18 through 25 are generally consistent with those for Scenario 1 (Tables 7 through 15). Once again, use of service is a significant discriminator of constrained preferences for only two services. Interestingly, although one of these services, bussing at the secondary level, is the same for both scenarios, the other is not (French immersion in Scenario 1 and library in Scenario 2). Similarly (to Scenario 1), significant differences in mean preferences based upon length of residence are few, age is a better demographic discriminator of preferences than gender, and occupation and education are better socio-economic discriminators than household income. The most striking feature of the analysis of group differences in preferences in Scenario 2 is the significance of location (Village of Hillsburgh versus rural Erin) as a discriminator of preferences for eight of the 13 services (Table 20). Rural residents place a higher priority on road services and police protection, while Hillsburgh residents place a greater emphasis upon cultural services (library and recreation) and education services. As suggested in Section 4.2.2 this probably reflects geographical variation in the availability of services. For instance, the township library and most of the recreation facilities are located in Hillsburgh.

TABLE 26 MEAN PREFERRED ALLOCATIONS: SCENARIO 3

	Service	Current Level ($)	Preferred Allocation mean (s.d.)	Mean change from current level	% change from current level
1.	Library	5	6.15 (2.55)	1.15	23.00
2.	Recreation	2	4.79 (3.63)	2.79	139.50
3.	Garbage Disposal	14	13.84 (2.98)	-0.16	- 1.14
4.	Police Protection	0	4.36 (5.72)	4.36	-
5.	Fire Protection	21	23.77 (4.83)	2.77	13.19
6.	County Roads Maintenance & Improvement	12	14.62 (3.90)	2.62	21.83
7.	Township Roads Maintenance & Improvement	38	41.46 (6.24)	3.46	9.10
8.	Winter Roads Clearance	27	28.08 (2.95)	1.08	4.00
9.	Elementary Education: Bussing	14	14.15 (2.36)	0.15	1.07
10.	Elementary Education: French Immersion	6	5.38 (2.99)	-0.62	- 10.33
11.	Elementary Education: Special Education	8	10.80 (4.48)	2.80	35.00
12.	Secondary Education: Bussing	10	10.06 (2.00)	0.06	0.60
13.	Secondary Education: Special Education	44	43.41 (7.20)	-0.59	- 1.34

TABLE 27 FREQUENCY AND AMOUNT OF SERVICE TRADE-OFFS: SCENARIO 3

Service	Current Allocations ($)	Reductions Sought n (%)	mean ($)	(s.d.)	No Change n (%)	Improvements Sought n (%)	mean ($)	(s.d.)
1. Library	5	15 (12.3)	3.33	(0.82)	52 (42.6)	55 (45.1)	8.00	(2.74)
2. Recreation	2	5 (4.1)	0.40	(0.55)	31 (25.4)	86 (90.5)	6.05	(3.62)
3. Garbage Disposal	14	17 (13.9)	8.29	(3.24)	75 (61.5)	30 (24.6)	16.60	(2.28)
4. Police Protection	0	- (-)	-	(-)	61 (50.0)	61 (50.0)	8.72	(5.23)
5. Fire Protection	21	1 (0.8)	0.00	(0.00)	46 (37.7)	75 (61.5)	25.79	(4.64)
6. County Roads Maintenance & Improvement	12	3 (2.5)	6.67	(0.58)	52 (42.6)	67 (54.9)	17.00	(3.72)
7. Township Roads Maintenance & Improvement	38	7 (5.7)	29.57	(4.54)	42 (34.4)	73 (59.8)	44.59	(5.76)
8. Winter Roads Clearance	27	7 (5.7)	21.14	(3.39)	64 (52.5)	51 (41.8)	30.39	(2.44)
9. Elementary Education: Bussing	14	17 (13.9)	10.18	(1.94)	76 (62.3)	29 (23.8)	16.86	(2.15)
10. Elementary Education: French Immersion	6	40 (32.8)	2.30	(1.95)	58 (47.5)	24 (19.7)	9.00	(3.06)
11. Elementary Education: Special Education	8	3 (2.5)	3.67	(3.21)	50 (41.0)	69 (56.6)	13.13	(4.68)
12. Secondary Education: Bussing	10	14 (11.5)	6.14	(2.35)	82 (67.2)	26 (21.3)	12.35	(1.60)
13. Secondary Education: Special Education	44	19 (15.6)	31.37	(10.93)	66 (54.1)	37 (30.3)	48.54	(3.18)

TABLE 28 MEAN ALLOCATIONS BY USE OF SERVICE: SCENARIO 3

	Current Level ($)	Users n	Users mean (s.d.)	Non-Users n	Non-Users mean (s.d.)
1. Library	5	42	7.05 (2.91)	80	5.68 (2.22)
2. Recreation	2	50	6.20 (4.27)	72	3.81 (2.73)
3. Garbage Disposal (Collection)	14	75	13.39 (2.95)	47	14.57 (2.90)
4. Garbage Disposal (No Coll.)	14	68	14.07 (3.06)	54	13.56 (2.87)
5. Police Protection	0	57	4.96 (5.99)	65	3.83 (5.47)
6. Fire Protection	21	26	23.73 (3.13)	96	23.78 (5.20)
7. Elementary Education: Bussing	14	48	14.38 (2.51)	74	14.00 (2.26)
8. Elementary Education: French Immersion	6	12	8.92 (4.46)	110	4.99 (2.53)
9. Elementary Education: Special Education	8	6	14.17 (8.04)	116	10.62 (4.21)
10. Secondary Education: Bussing	10	36	10.64 (1.79)	86	9.81 (2.05)
11. Secondary Education: Special Education	44	2	48.50 (3.54)	120	43.33 (7.22)

└──────┘ significant at the 0.05 level.

TABLE 29 MEAN ALLOCATIONS BY LENGTH OF RESIDENCE: SCENARIO 3

Service	Current Level ($)	Length of Residence ≤ 5 years (n=61) mean (s.d.)	6-15 years (n=41) mean (s.d.)	> 15 years (n=20) mean (s.d.)
1. Library	5	6.06 (2.69)	6.17 (2.46)	6.35 (2.39)
2. Recreation	2	4.67 (2.77)	5.73 (4.95)	3.20 (1.76)
3. Garbage Disposal	14	13.55 (3.25)	14.00 (2.49)	14.40 (3.03)
4. Police Protection	0	5.01 (6.29)	3.02 (4.55)	5.10 (5.80)
5. Fire Protection	21	23.72 (5.95)	23.80 (3.45)	23.85 (3.34)
6. County Roads Maintenance & Improvement	12	14.39 (3.21)	15.09 (4.57)	14.30 (4.41)
7. Township Roads Maintenance & Improvement	38	40.09 (5.05)	42.48 (7.39)	43.50 (6.32)
8. Winter Roads Clearance	27	27.68 (2.21)	28.68 (3.66)	28.05 (3.20)
9. Elementary Education: Bussing	14	13.96 (2.38)	14.21 (2.54)	14.55 (1.90)
10. Elementary Education: French Immersion	6	5.80 (2.61)	5.34 (3.63)	4.15 (2.32)
11. Elementary Education: Special Education	8	11.22 (4.14)	10.73 (5.35)	9.60 (3.34)
12. Secondary Education: Bussing	10	10.11 (1.56)	9.92 (2.76)	10.15 (1.34)
13. Secondary Education: Special Education	44	44.00 (5.80)	42.21 (9.79)	44.05 (4.11)

└──┘ significant at the 0.05 level

TABLE 30 MEAN ALLOCATIONS BY RESIDENCE LOCATION: SCENARIO 3

Service	Current Level ($)	Location: Rural Erin (n=92) mean (s.d.)	Location: Village of Hillsburg (n=30) mean (s.d.)
1. Library	5	5.80 (2.37)	7.20 (2.83)
2. Recreation	2	3.95 (3.10)	7.37 (3.94)
3. Garbage Disposal	14	14.04 (2.89)	13.23 (3.21)
4. Police Protection	0	4.60 (5.84)	3.63 (5.35)
5. Fire Protection	21	23.91 (5.34)	23.33 (2.71)
6. County Roads Maintenance & Improvement	12	14.93 (4.17)	13.63 (2.79)
7. Township Roads Maintenance & Improvement	38	42.35 (6.50)	38.73 (4.48)
8. Winter Roads Clearance	27	28.29 (3.01)	27.43 (2.69)
9. Elementary Education: Bussing	14	14.02 (2.47)	14.53 (1.98)
10. Elementary Education: French Immersion	6	5.07 (3.13)	6.33 (2.29)
11. Elementary Education: Special Education	8	10.55 (4.18)	11.53 (5.32)
12. Secondary Education: Bussing	10	10.04 (2.18)	10.10 (1.37)
13. Secondary Education: Special Education	44	43.28 (8.05)	43.80 (3.52)

⌊_____⌋ significant at the 0.05 level.

TABLE 31 MEAN ALLOCATIONS BY AGE: SCENARIO 3

Service	Current Level ($)	Age Group ≤ 35 years (n=48) mean (s.d.)	35-55 years (n=51) mean (s.d.)	> 55 years (n=23) mean (s.d.)
1. Library	5	6.04 (2.24)	6.01 (2.65)	6.65 (2.96)
2. Recreation	2	5.12 (3.74)	4.50 (3.59)	4.69 (3.56)
3. Garbage Disposal	14	13.41 (3.87)	14.09 (2.39)	14.17 (1.72)
4. Police Protection	0	4.56 (6.12)	4.25 (5.23)	4.17 (6.13)
5. Fire Protection	21	24.79 (5.59)	23.13 (2.94)	23.04 (6.15)
6. County Roads Maintenance & Improvement	12	14.70 (3.68)	14.43 (4.03)	14.82 (4.18)
7. Township Roads Maintenance & Improvement	38	39.93 (5.67)	42.05 (6.51)	43.30 (6.30)
8. Winter Roads Clearance	27	27.52 (3.51)	28.47 (2.47)	28.39 (2.50)
9. Elementary Education: Bussing	14	14.58 (2.55)	13.98 (2.42)	13.60 (1.58)
10. Elementary Education: French Immersion	6	5.68 (2.86)	4.88 (3.51)	5.82 (1.55)
11. Elementary Education: Special Education	8	11.66 (5.31)	10.45 (3.74)	9.73 (3.87)
12. Secondary Education: Bussing	10	10.04 (2.03)	10.31 (2.15)	9.52 (1.50)
13. Secondary Education: Special Education	44	42.79 (8.89)	43.74 (6.57)	43.95 (4.00)

⌊——⌋ significance at the 0.05 level.

TABLE 32 MEAN ALLOCATIONS BY GENDER: SCENARIO 3

Service	Current Level ($)	Gender Male (n=38) mean (s.d.)	Gender Female (n=84) mean (s.d.)
1. Library	5	5.97 (2.67)	6.23 (2.51)
2. Recreation	2	4.71 (3.20)	4.82 (3.82)
3. Garbage Disposal	14	13.79 (2.61)	13.87 (3.14)
4. Police Protection	0	4.63 (5.23)	4.24 (5.96)
5. Fire Protection	21	23.74 (3.32)	23.79 (5.39)
6. County Roads Maintenance & Improvement	12	14.53 (3.94)	14.65 (3.90)
7. Township Roads Maintenance & Improvement	38	42.03 (5.85)	41.20 (6.43)
8. Winter Roads Clearance	27	28.18 (3.36)	28.04 (2.76)
9. Elementary Education: Bussing	14	13.76 (2.21)	14.32 (2.41)
10. Elementary Education: French Immersion	6	5.66 (2.26)	5.25 (3.27)
11. Elementary Education: Special Education	8	9.89 (4.11)	11.20 (4.61)
12. Secondary Education: Bussing	10	9.63 (2.10)	10.25 (1.94)
13. Secondary Education: Special Education	44	44.13 (4.11)	43.08 (8.22)

⌊_____⌋ significant at the 0.05 level.

TABLE 33 MEAN ALLOCATIONS BY HOUSEHOLD INCOME: SCENARIO 3

Service	Current Level ($)	Income Group $20,000 or less (n=33) mean (s.d.)	$20,000-40,000 (n=51) mean (s.d.)	$40,000 or more (n=18) mean (s.d.)
1. Library	5	5.85 (2.43)	6.18 (2.51)	5.89 (2.95)
2. Recreation	2	4.36 (3.53)	4.71 (2.99)	4.06 (2.60)
3. Garbage Disposal	14	14.00 (3.31)	13.61 (3.24)	14.22 (2.84)
4. Police Protection	0	6.12 (7.21)	3.55 (5.34)	5.39 (5.12)
5. Fire Protection	21	24.12 (7.67)	23.20 (2.86)	23.39 (2.89)
6. County Roads Maintenance & Improvement	12	15.21 (4.17)	13.73 (3.28)	15.44 (3.90)
7. Township Roads Maintenance & Improvement	38	42.06 (5.07)	40.96 (6.43)	41.28 (6.12)
8. Winter Roads Clearance	27	27.45 (2.90)	27.80 (2.43)	28.72 (2.82)
9. Elementary Education: Bussing	14	13.67 (2.22)	14.47 (1.76)	13.33 (2.79)
10. Elementary Education: French Immersion	6	5.33 (1.83)	6.14 (3.42)	4.67 (2.81)
11. Elementary Education: Special Education	8	10.70 (5.19)	11.16 (4.35)	9.94 (2.26)
12. Secondary Education: Bussing	10	9.82 (1.51)	10.75 (1.71)	9.44 (2.09)
13. Secondary Education: Special Education	44	43.30 (6.11)	44.75 (6.23)	42.67 (6.37)

└──┘ significant at the 0.05 level.

TABLE 34 MEAN ALLOCATIONS BY LEVEL OF EDUCATION: SCENARIO 3

Service	Current Level ($)	Level of Education: Grade 8 or less (n=8) mean (s.d.)	Grades 9-13 (n=65) mean (s.d.)	Some Coll./Univ. (n=22) mean (s.d.)	Coll./Univ. Degree (n=27) mean (s.d.)
1. Library	5	6.38 (2.45)	6.23 (2.51)	5.86 (1.70)	6.11 (3.29)
2. Recreation	2	3.25 (1.49)	4.89 (3.95)	4.23 (3.49)	5.44 (3.30)
3. Garbage Disposal	14	13.75 (4.46)	13.69 (2.94)	14.36 (2.17)	13.81 (3.25)
4. Police Protection	0	6.75 (8.75)	4.06 (4.98)	5.27 (7.09)	3.63 (5.18)
5. Fire Protection	21	22.25 (2.82)	24.34 (3.37)	22.86 (2.48)	23.59 (8.43)
6. County Roads Maintenance and Improvement	12	16.12 (5.36)	14.20 (3.19)	15.68 (4.58)	14.30 (4.35)
7. Township Roads Maintenance and Improvement	38	42.62 (4.72)	41.82 (6.75)	40.68 (2.89)	40.89 (7.40)
8. Winter Roads Clearance	27	28.88 (3.18)	28.37 (2.74)	27.04 (3.96)	28.00 (2.29)
9. Elementary Education: Bussing	14	14.25 (0.71)	14.26 (2.40)	13.45 (2.89)	14.41 (2.08)
10. Elementary Education: French Immersion	6	4.50 (2.78)	5.48 (2.68)	6.32 (3.72)	4.63 (3.02)
11. Elementary Education: Special Education	8	8.62 (1.19)	9.75 (2.47)	12.54 (6.82)	12.52 (5.54)
12. Secondary Education: Bussing	10	10.00 (0.00)	9.83 (2.25)	10.09 (2.11)	10.59 (1.47)
13. Secondary Education: Special Education	44	43.75 (4.46)	43.74 (7.16)	42.68 (7.89)	43.11 (7.63)

75 ⌊——⌋ significant at the 0.05 level. 76

TABLE 35 MEAN ALLOCATIONS BY OCCUPATION: SCENARIO 3

Service	Current Level ($)	Occupational Group: Houseperson (n=53) mean (s.d.)	Ret./Unempl. (n=15) mean (s.d.)	Prof./Manag. (n=26) mean (s.d.)	Cler./Lab. (n=25) mean (s.d.)
1. Library	5	6.15 (2.15)	7.47 (3.54)	5.85 (3.20)	5.44 (1.29)
2. Recreation	2	4.74 (3.52)	5.13 (3.74)	5.31 (4.49)	4.00 (2.60)
3. Garbage Disposal	14	14.00 (2.38)	14.07 (0.26)	14.00 (3.71)	13.40 (4.09)
4. Police Protection	0	3.85 (5.54)	3.60 (5.74)	4.81 (5.93)	5.60 (6.11)
5. Fire Protection	21	23.85 (3.40)	22.93 (7.09)	24.38 (7.08)	23.76 (3.03)
6. County Roads Maintenance and Improvement	12	14.47 (3.80)	15.60 (4.85)	15.04 (3.62)	14.00 (4.00)
7. Township Roads Maintenance and Improvement	38	41.00 (6.86)	43.20 (6.92)	40.81 (6.14)	42.32 (4.80)
8. Winter Roads Clearance	27	27.89 (2.96)	28.33 (2.41)	28.85 (2.56)	28.04 (2.95)
9. Elementary Education: Bussing	14	14.49 (2.61)	13.80 (1.42)	14.08 (2.88)	13.88 (1.36)
10. Elementary Education: French Immersion	6	5.55 (3.52)	5.67 (1.92)	5.04 (3.01)	5.28 (2.48)
11. Elementary Education: Special Education	8	11.34 (5.00)	9.60 (4.22)	10.12 (3.34)	10.00 (3.14)
12. Secondary Education: Bussing	10	10.42 (2.27)	9.67 (1.29)	9.85 (2.01)	9.88 (1.48)
13. Secondary Education: Special Education	44	42.94 (8.85)	43.33 (3.40)	42.15 (7.85)	45.28 (3.14)

⌊——⌋ significant at the 0.05 level.

5.2 Scenario 3

This scenario required respondents to increase the total allocation by 10 percent ($20) above the original (Scenario 1) budget. The starting point for respondents was the same as in Scenario 2, that is, the set of preferred allocations at the end of Scenario 1. Respondents were again encouraged to re-evaluate their overall allocation of resources in concert with the allotting of the budget increase.

5.2.1 General Preferences

As might be expected, the general pattern of preferred allocations is dominated by increases (Table 26), with only two services, garbage disposal and French immersion, displaying mean preferred allocations lower than the current allocation. As for Scenario 2 (Table 16), the percentage change values reveal the service by service impact of the 10 percent budget increase to be modified considerably by the concurrent reallocation of resources.

As in the case of Scenario 2, the change in the budget (away from the fixed total allocation of Scenario 1) forces respondents to make more changes in allocations. This is reflected in the frequency and amounts of trade-offs (Table 27); the 'no change' response is the modal one for seven services, with 'improvements sought' being the modal response for the remaining six.

5.2.2 Differences in Preferences

The analysis of differences in preferences amongst various groups in the population again follows the pattern set out for Scenario 1 in Section 4.2.2. Although the data in Tables 28 through 35 are consistent

in many ways with those for the other two scenarios (see Sections 4.2.2 and 5.1.2) there are some interesting points of departure. Most notably, use of service is a better discriminator of preferences than in either of the other scenarios (Table 28) and the number of significant differences associated with demographic and socio-economic characteristics is lower than in the other scenarios. Further discussion of these and other differences among the three scenarios clearly represents a major task.

5.3 Inter-Scenario Comparisons

5.3.1 General Preferences

The general preferences of the respondents for each of the three scenarios is summarized in Table 36. A broad consistency in the overall pattern is apparent. In general, services such as garbage disposal and French immersion for which the allocation of expenditure was reduced under a fixed budget (Scenario 1) were further reduced when the overall budget was decreased (Scenario 2). Similarly, services such as fire protection and special education at the elementary level for which the allocation of expenditure was increased substantially under a fixed budget were increased even more when the overall budget was increased. However, this broad consistency in overall preferences across budget scenarios is underlain by marked variability in priorities. Although the same services may be improved in each scenario, the degree of improvement may vary relatively, as well as absolutely, from service to service.

Changes in relative priority are clearly reflected in the budget elasticity of the allocations to individual services. Of the 13

TABLE 36 AVERAGE CHANGE FROM CURRENT LEVELS

Service	Current Level	Scenario 1 Mean	Scenario 1 (%)	Scenario 2 Mean	Scenario 2 (%)	Scenario 3 Mean	Scenario 3 (%)
Library	5	.20	(4.00)	-1.16	(-23.20)	1.15	(23.00)
Recreation	2	.52	(26.00)	-0.04	(- 2.00)	2.79	(139.50)
Garbage Disposal	14	- .57	(- 4.07)	-2.97	(-21.25)	-0.16	(- 1.14)
Police Protection	0	.95	-	0.83	-	4.36	-
Fire Protection	21	.80	(3.80)	0.60	(2.88)	2.77	(13.19)
County Roads	12	.80	(6.66)	-0.64	(- 5.33)	2.62	(21.83)
Township Roads	38	.75	(1.98)	-3.42	(- 9.00)	3.46	(9.10)
Winter Road Clearance	27	- .09	(- 0.33)	-2.04	(- 7.56)	1.08	(4.00)
El. Ed. Bussing	14	- .41	(- 2.93)	-1.55	(-11.07)	0.15	(1.07)
El. Ed. French Imm.	6	-1.21	(-20.17)	-2.36	(-39.33)	-0.62	(-10.33)
El. Ed. Special Ed.	8	.86	(10.75)	0.36	(4.50)	2.80	(35.00)
Sec. Ed. Bussing	10	- .38	(- 3.80)	-1.52	(-15.20)	0.06	(0.60)
Sec. Ed. Special Ed.	44	-1.98	(- 4.50)	-6.04	(-13.72)	-0.59	(- 1.34)

services, recreation displays the greatest budget elasticity. In percentage terms the mean preferred allocation to recreation ranges from 2.0 percent below the current allocation (Scenario 2) to 139.50 percent above the current allocation (Scenario 3). In contrast, the mean preferred allocation for fire protection ranges from 2.88 percent (Scenario 2) to 13.19 percent (Scenario 3) above the current allocation. Under a fixed or expanded budget respondents preferred to see a greater percentage increase in expenditure on recreation compared to fire protection, but this priority was reversed when they were faced with a reduced budget. This underlines the danger of translating broad preferences for service provision elicited under one budget scenario into precise statements of budget priorities for a different budget scenario.

Differences in the pattern of constrained preferences across budget scenarios are to be expected because Scenarios 2 and 3 force individuals who were reluctant to undertake any trade-offs in Scenario 1 (nearly 40 percent of the sample) to indicate a preference. This is clearly evident in Table 37. In terms of 'forcing' preferences, Scenario 2 is the more effective with the 'no change' response being the modal one for only five services, as opposed to seven in Scenario 3. Moreover, the distribution of respondents across the three options (down, same, up) is greater from Scenarios 2 and 3 than for Scenario 1, which is reflected in the changing size of the modal response category.

5.3.2 Differences in Preferences

The analysis of differences in the preferences of different groups of respondents is summarized in Table 38. There are four instances in

TABLE 37 DIRECTION OF CHANGE FROM CURRENT LEVELS

Service	Scenario 1			Scenario 2			Scenario 3		
	Down	No Change	Up	Down	No Change	Up	Down	No Change	Up
Library	18	89	15	66	46	10	15	52	55
Recreation	4	92	26	37	68	17	5	31	86
Garbage Disposal	16	99	7	76	45	1	17	75	30
Police Protection	0	99	23	0	102	20	0	61	51
Fire Protection	1	101	20	7	97	18	1	46	75
County Roads	5	95	22	47	55	20	3	52	67
Township Roads	7	88	27	76	30	16	7	42	73
Winter Road Clearance	9	99	14	57	56	9	7	64	51
El. Ed. Bussing	19	99	4	60	58	4	17	76	29
El. Ed. French Imm.	43	76	3	76	43	3	40	58	24
El. Ed. Special Ed.	4	95	23	18	84	20	3	50	69
Sec. Ed. Bussing	17	102	3	60	59	3	14	82	26
Sec. Ed. Special Ed.	21	95	6	78	41	3	19	66	37

____ denotes modal category.

which inter-group differences in constrained preferences are significant in all three scenarios ('use' for secondary education bussing, 'length of residence' for recreation, 'location' for township roads, and 'education' for elementary special education), but in the majority of cases the degree of difference between group preferences appears sensitive to the specification of the budget within which respondents are required to trade-off. An excellent illustration of this sensitivity to budget specification is provided by the location variable.

In Scenario 1, the mean preferred allocations of the two location groups (Village of Hillsburgh versus rural Erin) were significantly different for two services only (Table 10), while in Scenario 2 there were eight significant differences (Table 20), and in Scenario 3 there were four (Table 30). This indicates that a reduced budget forces trade-offs that are more strongly influenced by considerations and attitudes based upon the location of the respondent (and, by implication, the differential availability of services) than is the case when budget is fixed or increased.

The evidence summarized in Table 38 suggests that the relative importance of the different respondent characteristics included in the analysis varies across budget scenarios. Under all three budget situations, gender and household income are poor discriminators of preferences for service provision. In Scenario 1, age and the socio-economic variables, education and occupation, are the most effective discriminators of preferences across all services. In contrast, in Scenario 2 (reduced budget), although age and education and occupation

TABLE 38 SUMMARY OF ANALYSIS OF INTER-GROUP DIFFERENCES IN PREFERENCES

Service	Use	Length of Residence	Location	Age	Gender	Income	Education	Occupation
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3
1. Library	■ ●	●	■ ●					▲ ●
2. Recreation	●	▲ ■ ●	■ ●	▲			●	▲
3. Garbage Disposal	●	■		■				
4. Police Protection			▲	▲ ■				
5. Fire Protection				▲ ■	▲			
6. County Roads Maintenance & Improvement			■				■ ●	
7 Township Roads Maintenance & Improvement		●	▲ ■ ●	●			■ ●	
8. Winter Roads Clearance			■	■				■
9. Elementary Education: Bussing								
10. Elementary Education: French Immersion	▲ ●	●	■ ●	▲				
11. Elementary Education: Special Education							▲ ■ ●	▲ ■
12. Secondary Education: Bussing	▲ ■ ●		■			▲ ■	▲ ■	
13. Secondary Education: Special Education		■	■					▲

▲ ■ ● significant at the .05 level.

are still important discriminators of preferences, length of residence and particularly location become more important. In Scenario 3 (increased budget), use, length of residence and location are by far the most effective discriminators of respondents with different preferences. Whatever its underlying cause, this sensitivity of group preferences to budget specification is clearly important for those responsible to eliciting public opinion on service provision. Moreover, the problem of anticipating group preferences will be compounded in those rural areas in which the structure of the community is changing rapidly.

5.3.3 Preferred Scenario

After playing the trade-off game under the three scenarios, and thereby becoming aware of the relationship between alternative budgets and service provision opportunities, respondents were asked to indicate the scenario they preferred. Given the widespread and often vocal opposition to increases in property taxes it might be expected that people would prefer a reduced budget. In the United States such preferences have culminated in Proposition 13 (California) and Proposition 2 1/2 (Massachusetts), which slashed property taxes and subsequently led to reductions in levels of public service provision. However, the results from the Erin case study show that 41 percent preferred the status quo and 40 percent preferred an increased budget and the accompanying improvement of services, while only 19 percent preferred to save taxes by sacrificing service quality.

This result might be surprising given the general acceptance that property taxes are too high, but it demonstrates that once people realize that reductions in property taxes invariably represent

reductions in service provision, as they are forced to do in the trade-off method, they may be less likely to opt for the tax reduction. In the California and Massachusetts cases the service implications of budget cuts became apparent to most residents only as the services deteriorated or disappeared altogether. More and more people are now willing to pay higher property taxes to maintain the public services. By conducting the trade-off game under alternative budgets the implications of property tax changes for service provision become apparent to residents without the changes having to occur in reality.

The results for Erin indicate that a large proportion of the population is prepared to forego the opportunity to have reductions in property taxes because they would prefer to maintain or improve upon the levels of service they currently receive. However, the relationship between scenario preference and respondent characteristics is unclear (Table 39). The only statistically significant relationship revealed by a Chi-Square analysis is between scenario preference and age of respondent; proportionately more of the older respondents opted for the reduced budget and accompanying level of service provision. This suggests a complex interplay of the forces underlying preferences for service provision rather than a simple relationship between scenario preference and individual respondent characteristics, and underlines once again the fragile basis for conventional wisdom on demands for public services in rural areas (e.g., new residents demand, and are willing to pay for, more services).

TABLE 39 SCENARIO PREFERENCE BY RESPONDENT CHARACTERISTICS

	Scenario 1 # (Row %)	Scenario 2 # (Row %)	Scenario 3 # (Row %)
Age*			
≤ 35	19 (42.2)	7 (15.6)	19 (42.2)
36 - 55	22 (44.9)	5 (10.2)	22 (44.9)
55 >	7 (31.8)	10 (45.5)	5 (22.7)
Gender			
Male	13 (35.1)	10 (27.0)	14 (37.8)
Female	35 (44.3)	12 (15.2)	32 (40.5)
Education Level			
< Grade 8	2 (25.0)	3 (37.5)	3 (37.5)
Grades 8 to 13	27 (45.0)	12 (20.0)	21 (35.0)
Some College or University	12 (54.5)	2 (9.1)	8 (36.4)
University or College Degree	7 (26.9)	5 (19.2)	14 (53.8)
Occupation			
Houseperson	22 (44.0)	7 (14.0)	21 (42.0)
Retired or Unemployed	5 (35.7)	6 (42.9)	3 (21.4)
Professional or Management	8 (32.0)	4 (16.0)	13 (52.0)
Labour or Clerical	11 (45.8)	4 (16.7)	9 (37.5)
Household Income			
< $20,000	9 (29.0)	7 (22.6)	15 (48.4)
$20,000 - 40,000	22 (45.8)	8 (16.7)	18 (37.5)
> $40,000	11 (61.1)	0 (0.0)	7 (38.9)
Length of Residence			
≤ 5	22 (39.3)	7 (12.5)	27 (48.2)
6 - 15	18 (43.9)	10 (24.4)	13 (31.7)
> 15	8 (42.1)	5 (26.3)	6 (31.6)
Location			
Rural Erin	37 (41.1)	18 (20.0)	35 (38.9)
Village of Hillsburgh	11 (42.3)	4 (15.4)	11 (42.3)

* denotes a significant difference at the .05 level.

SECTION SIX

OVERVIEW

Substantive information on community preferences for alternative service levels is an important input into planning for service provision which has often proven difficult to obtain. Trade-off games can provide decision-makers with a comprehensive and detailed picture of community preferences for expenditures on services. Because the game format simulates the constrained environment, the resulting preferences are based upon informed judgement. Furthermore, the game, and hence the results, can be organized in a format that corresponds with the categories for which funds are budgeted and expenditures are actually made. This, along with the fact that co-operation with authorities who supply the services is necessary to calibrate the game instrument, greatly enhances the applicability of the tool to planning for service provision.

There is a danger, however, that planners focus on the mean community preferences, and in this way may overlook legitimate minority interests. Service agencies need to be aware of the special needs of minority groups within the community. Fortunately, the data yielded by the trade-off game readily permit examination of the nature and degree of differences in preferences within the community.

In the Erin case, for example, the results for the sample as a whole in Scenario 1 (Table 7) imply that the amount of the current budget apportioned for the library service is generally accepted as appropriate, but there are minorities who would prefer increases or decreases in expenditure on this service. The trade-off game method

clearly does not provide a solution to the problem of accommodating such minority concerns, but it does permit the accurate identification of minority interests and facilitates comparison of minority preferences with those of the rest of the population. In this context, an extension of the analysis reported here would be to identify the characteristics (location, age, income, etc.) of respondents in the minority preference groups. Such characterization would at least provide decision-makers with an improved comprehension of the preference groups in the area.

An important contribution to the task of providing services is also made by supplying residents with information on service options and on limits imposed by budget constraints. It is very easy and common for taxpayers to express dissatisfaction with the services they receive from their municipality. The experience in the Erin study was that residents who played the game became aware of the limits within which municipal planners have to work. Respondents, eager to show the planners the services in need of improvement, often decided that the existing levels of service were quite adequate when it became apparent that the desired improvements would require reductions in other services, or more taxes. (It might be argued that versions of the game be distributed to all households in a municipality as a combined recreational, educational and open planning tool). Whatever service-related decisions are eventually proposed in the municipality, residents who played the game will be in a more informed position to assess the proposals than those who did not.

In terms of tailoring the game for application in specific areas, it is clearly the responsibility of the user to choose services and to specify service levels and associated costs. The structure of the case

study outlined in this report provides a model for users, while the results reported for Erin township provide a useful basis for comparison.

An important lesson learned from the Erin case study is that, as in any public participation exercise, the results obtained with the trade-off game are sensitive to the conditions (real or hypothetical) under which respondents are asked to express their opinions. In particular, the Erin Township results indicate that the budget scenario set for the game should conform as closely as possible with the anticipated budgetary situation. Although the data suggest that there is a broad consistency underlying the overall preference pattern, there is strong evidence that preferences elicited under a particular budget scenario should not be assumed to hold for all scenarios. This is especially true if attention is to be focussed on the structure of (interest) groups holding different preferences.

REFERENCES

Archer, R.W. (1973), Land speculation and scattered development: failures in the urban fringe land market, Urban Studies, Vol. 10, pp. 367-382.

Bryant, C.R. and Russwurm, L.H. (1979), The impact of nonfarm development on agriculture -- a synthesis, Plan Canada, Vol. 19, pp. 122-139.

Canadian Council on Rural Development (1973), Commitment to Rural Canada: Fifth Report and Review, Ottawa.

Cole, R.L. (1974), Citizen Participation and the Urban Policy Process, Lexington, Mass.: Heath.

Cupps, S.D. (1977), Emerging problems of citizen participation, Public Administration Review, Vol. 37.

Gertler, L. and Crowley, G. (1977). Changing Canadian Cities: The Next Twenty-Five Years, Toronto: McClelland and Stewart.

Golob, T.F., Canty, E.T., and Gustafson, R.L. (1972), An analysis of consumer preferences for a public transportation system, Transportation Research, Vol. 6, pp. 81-102.

Greenwood, M.J. (1975), Research on internal migration in the U.S.: a survey, Journal of Economic Literature, Vol. 13, pp. 397-434.

Healy, R.G. (1976), Land Use in the States, Baltimore: Johns Hopkins University Press.

Hennigh, L. (1978), The good life and the taxpayers revolt, Rural Sociology, Vol. 43, pp. 178-190.

Hoinville, G. (1971), Evaluating community preferences, Environment and Planning, Vol. 3, pp. 33-50.

Joseph, A.E. and Poyner, A. (1981), The Utilization of Three Public Services in a Rural Ontario Township: An Empirical Evaluation of a Conceptual Framework, Guelph: University of Guelph, Department of Geography, Studies in Rural Adjustment No. 12.

Joseph, A.E. and Smit, B.E. (1981), Implications of exurban residential development: a review, Canadian Journal of Regional Science, Vol. 4, pp. 207-224.

Joseph, A.E., Smit, B.E., and Poyner, A. (1980), The Provision of Municipal Public Services in Wellington County, Guelph: University of Guelph, Department of Geography, Studies in Rural Adjustment No. 10.

Kaemmerer, W.F. and Schwebel, A.I. (1977), Citizen participation in community planning: a simulation of the citizen--planner

information exchange process, American Journal of Community Psychology, Vol. 5, pp. 249-253.

Knight, R.L. and Menchik, M.D. (1974), Residential Environmental Attitudes and Preferences: Report of a Questionnaire Survey, Institute of Environmental Studies, Report No. 24, University of Wisconsin, Madison.

Krueger, R.R. (1957), The rural-urban fringe taxation problem: a study of Louth Township, Land Economics, Vol. 32, pp. 264-269.

MacCrimmon, K.R. and Toda, M. (1969), The experimental determination of indifference curves, Review of Economic Studies, Vol. 36, pp. 433-451.

Metcalf, J. (1968), Satisfaction and housing standards, Building Research Station, IN 159/67, Garston, England.

Murrell, S. and Schulte, P. (1980a), A procedure for systematic citizen input to community decision-making, American Journal of Community Psychology, Vol. 8, pp. 19-30.

Murrell, S. and Schulte, P. (1980b), Measuring citizen evaluations of services amidst community change, American Journal of Community Psychology, Vol. 8, pp. 387-400.

Nisbet, R. (1973), Commentary on Friedman's 'Public interest and community participation: toward a reconstruction of public philosophy,' Journal of the American Institute of Planners, Vol. 39, pp. 8-9.

Peterson, G. (1968), Values and goals for urban development, in Guidelines for New Systems of Urban Transportation, Vol. II, Chicago: Barton-Aschman Associates Inc.

Pollio, H.B. (1974), The Pshchology of Symbolic Activity, Reading, Mass.: Addison-Wesley.

Reynolds, I. and Nicholson, C. (1970), The Estate Outside the Dwelling, London: HMSO.

Robinson, I.M., Baer, W.D., Banerjee, T.K., and Flachsbart, P.G. (1975), Trade-off games, in W. Michelson, ed., Behavioral Research Methods in Environmental Design, Stroudsburg: Dowden, Hutchinson and Ross.

Schwarzweller, H.K., (1979), Migration and the changing rural scene, Rural Sociology, Vol. 44, pp. 7-23.

Scitovsky, T. (1971), Welfare and Competition, Homewood, Ill.: Irwin.

Smit, B.E. (1979), Regional employment changes in Canadian agriculture, The Canadian Geographer, Vol. 23, pp. 1-17.

Smit, B.E. and Joseph, A.E. (1982), Trade-off analysis of preferences

for public services, Environment and Behavior, Vol. 14, pp. 238-258.

Thompson, V.A. (1969), Bureaucracy and Innovation, Alabama: University of Alabama Press.

Webber, M.M (1973), Alternative styles for citizen participation in transport planning, DMG-DRS Journal: Design Research and Methods, Vol. 7, pp. 60-64.

Whitaker, G. (1980), Coproduction: citizen participation in service delivery, Public Administration Review, Vol. 40, pp. 240-246.

Wilson, R.L. (1962), Livability of the city: attitudes and urban development, in F.S. Chapin and S.F. Weiss, eds., Urban Growth Dynamics in a Regional Cluster of Cities, New York: Wiley.

Appendix 1

Erin Township: Service Levels and Costs to Average Municipal Taxpayer with $4,000 Assessment

LIBRARY

REDUCED LEVEL:	no township support of library	$ 0
CURRENT LEVEL:	township library as at present	$ 5
IMPROVED LEVEL:	longer opening hours, more books, etc.	$10

RECREATION

REDUCED LEVEL:	1 or 2 township parks, less support for local clubs and groups	$ 1
CURRENT LEVEL:	3 township parks, support for local clubs and groups	$ 2
IMPROVED LEVEL:	4 township parks, more support for local clubs and groups	$ 4

GARBAGE DISPOSAL

REDUCED LEVEL:	no township dump	$ 0
CURRENT LEVEL:	controlled township dump, supervised, contractor for levelling, etc.	$14
IMPROVED LEVEL:	township dump plus weekly collection from households	$56

POLICE PROTECTION

CURRENT LEVEL:	O.P.P. Protection	$ 0
IMPROVED LEVEL:	township full-time force (7 men) and current level of O.P.P. protection	$40

* See Joseph, Smit and Poyner (1980) for additional information.

FIRE PROTECTION

REDUCED LEVEL:	township volunteer force, no outside support	$ 7
CURRENT LEVEL:	township volunteer force and support from Erin Village and Acton	$ 21
IMPROVED LEVEL:	township full time force (5 men) and support from Erin Village and Acton	$ 71

COUNTY ROAD MAINTENANCE AND SURFACE IMPROVEMENT

CURRENT LEVEL:	150 miles paved 109 miles low cost bitumen (surface treated) 71 miles gravel	$ 12
MODERATELY IMPROVED LEVEL:	150 miles paved 180 miles low cost bitumen (surface treated) 0 miles gravel	$ 16
GREATLY IMPROVED LEVEL:	330 miles paved 0 miles low cost bitumen (surface treated) 0 miles gravel	$ 53

TOWNSHIP ROAD MAINTENANCE AND SURFACE IMPROVEMENT

CURRENT LEVEL:	1.5 miles paved 10 miles low cost bitumen (surface treated) 154.5 miles gravel	$ 38
MODERATELY IMPROVED LEVEL:	1.5 miles paved 164.5 miles low cost bitumen (surface treated) 0 miles gravel	$104
GREATLY IMPROVED LEVEL:	166 miles paved 0 miles low cost butumen (surface treated) 0 miles gravel	$387

WINTER ROAD CLEARANCE: COUNTY AND TOWNSHIP

REDUCED LEVEL:	less frequent salting, plowing,etc.	$ 20
CURRENT LEVEL of Service		$ 27
IMPROVED LEVEL:	more frequent salting, plowing,etc.	$ 34

ELEMENTARY EDUCATION: FRENCH IMMERSION

REDUCED LEVEL:	0 schools in Wellington County	$ 0
CURRENT LEVEL:	9 schools in Wellington County Kindergarten to Grade 6 0 schools in Wellington County Grades 7 & 8	$ 6
IMPROVED LEVEL:	All schools in Wellington County Kindergarten to Grade 8	$24

ELEMENTARY EDUCATION: SPECIAL EDUCATION

REDUCED LEVEL:	0 schools in Wellington County with facilities for the physically handicapped 0 schools in Wellington County with programs for slow learners 2 schools in Wellington County with programs for trainable mentally retarded 0 schools in Wellington County with programs for gifted students	$ 4
CURRENT LEVEL:	2 schools in Wellington County with facilities for physically handicapped 19 schools in Wellington County with programs for slow learners 2 schools in Wellington County with programs for trainable mentally retarded 1 school in Wellington County with programs for gifted students	$ 8
IMPROVED LEVEL:	All schools in Wellington County with facilities for physically handicapped All schools in Wellington County with programs for slow learners All schools in Wellington County with programs for trainable mentally retarded All schools in Wellington County with programs for gifted students	$84

ELEMENTARY EDUCATION: BUSSING

REDUCED LEVEL:	maximum trip duration for any child is 55 mins.	$11
CURRENT LEVEL:	maximum trip duration for any child is 45 mins.	$14
IMPROVED LEVEL:	maximum trip duration for any child is 35 mins.	$17

SECONDARY EDUCATION: SPECIAL EDUCATION

REDUCED LEVEL:	0 schools in Wellington County with facilities for the physically handicapped 0 schools in Wellington County with vocational programs 0 schools in Wellington County with occupations and services	$ 0
CURRENT LEVEL:	1 school in Wellington County with facilities for the physically handicapped 7 schools in Wellington County with vocational programs 3 schools in Wellington County with occupations and services	$44
IMPROVED LEVEL:	All schools in Wellington County with facilities for the physically handicapped All schools in Wellington County with vocational programs All schools in Wellington County with occupations and services	$74

SECONDARY EDUCATION: BUSSING

REDUCED LEVEL:	Maximum trip duration for students is 70 minutes	$ 7
CURRENT LEVEL:	Maximum trip duration for students is 60 minutes	$10
IMPROVED LEVEL:	Maxiumu trip duration for students is 50 minutes	$13

Appendix 2

The Questionnaire

1. Which of the following services would you like to be: a) improved, b) left the same, or c) reduced?

		Improved	Same	Reduced
a)	Township Library	_____	____	_____
b)	Township Recreation	_____	____	_____
c)	Township Garbage Disposal	_____	____	_____
d)	Township Police Protection	_____	____	_____
e)	Township Fire Protection	_____	____	_____
f)	County Road Maintenance and Surface Improvement	_____	____	_____
g)	Township Road Maintenance and Surface Improvement	_____	____	_____
h)	Township and County Winter Road Clearance	_____	____	_____
i)	County Elementary Education - Bussing	_____	____	_____
j)	County Elementary Education - French Immersion	_____	____	_____
k)	County Elementary Education - Special Education	_____	____	_____
l)	County Secondary Education - Bussing	_____	____	_____
m)	County Secondary Education - Special Education	_____	____	_____

Game Results:	Allocations First (fixed)	Second (-10%)	Third (+10%)
a) Library	_____	_____	_____
b) Recreation	_____	_____	_____
c) Garbage Disposal	_____	_____	_____
d) Police Protection	_____	_____	_____
e) Fire Protection	_____	_____	_____
f) County Roads	_____	_____	_____
g) Township Roads	_____	_____	_____
h) Winter Road Clearance	_____	_____	_____
i) Elem. Educ. - Bussing	_____	_____	_____
j) Elem. Educ. - French Immersion	_____	_____	_____
k) Elem. Educ. - Special Education	_____	_____	_____
l) Sec. Educ. - Bussing	_____	_____	_____
m) Sec. Educ. - Special Education	_____	_____	_____

2. Has your household used any of the following in the past year?

	Yes	No
a) township library	___	___
b) township recreation facilities	___	___
c) a regular garbage collection	___	___
d) the township dump	___	___

3. While living in Erin Township, has any member of your household ever used:

	Yes	No
a) the police	___	___
b) the fire service	___	___

4. Has or will any member of your household use(d) the following education services in 1981?

	Yes	No
a) Elem. Educ. - Bussing	___	___
b) Elem. Educ. - French Immersion	___	___
c) Elem. Educ. - Special Education	___	___
d) Sec. Educ. - Bussing	___	___
e) Sec. Educ. - Special Education	___	___

5. How long have you lived in Erin Township? _____ years.

6. Which of the following age groups do you fall into?

_____ less than 25	_____ 46-55
_____ 26-35	_____ 56-65
_____ 36-45	_____ more than 65

7. Gender of respondent: _____ Male _____ Female

8. How many children do you have attending school, or younger?
_____.

9. Do you or your spouse commute to work outside of Erin Township?
_____ Yes _____ No.

10. What is your occupation? _____.
What is your spouse's occupation? _____.

11. Which level of education did you complete?

_____ Less than Grade 8

_____ Grades 9-13

_____ Some university or college

_____ University or college degree.

12. Which of the following income groups does your household fall into?

_____ Less than $10,000

_____ $10,000 - $20,000

_____ $20,000 - $30,000

_____ $30,000 - $40,000

_____ $40,000 - $50,000

_____ More than $50,000